

Figure 1

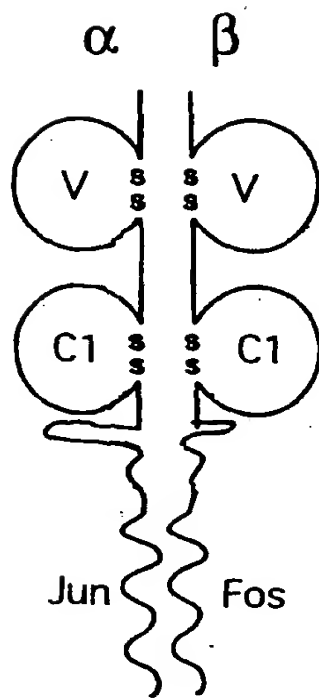


Figure 2

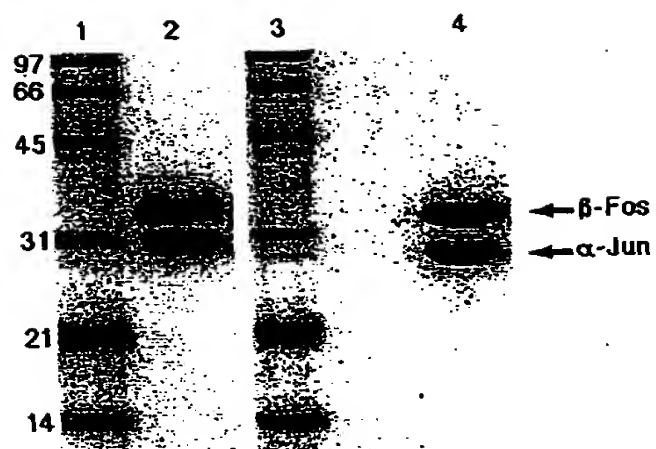
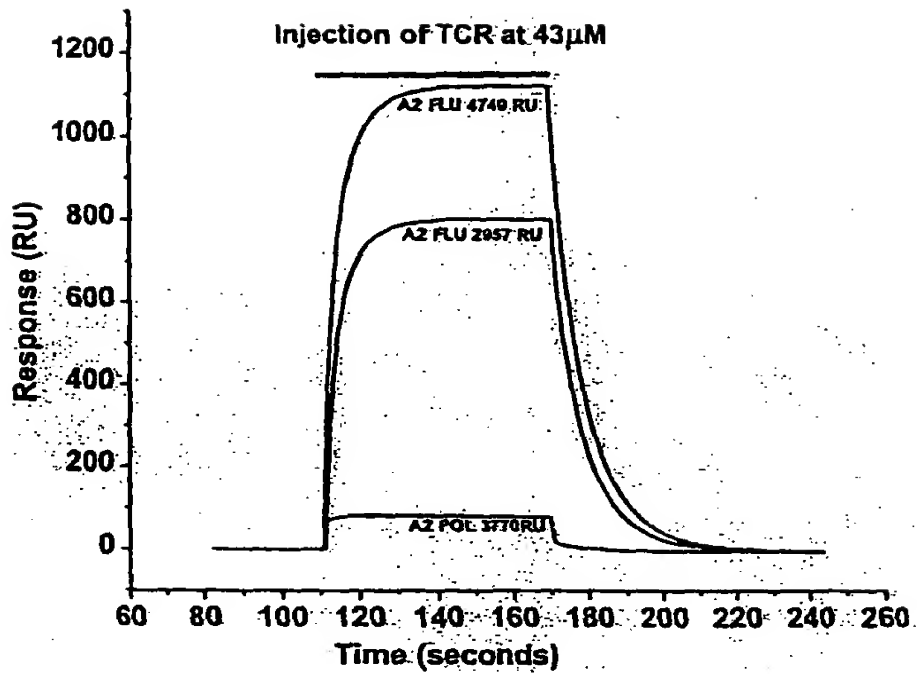


Figure 3



### FIGURE 4

TCR alfa&gt;

M Q L L E Q S P Q F L S I Q E G E N L T  
ATGCAaCTaCTaGAaCAaAGtCCTCAGTTTCTAAGCATCCAAGAGGGAGAAAATCTCACT

V Y C N S S S V F S S L Q W Y R Q E P G  
GTGTACTGCAACTCCTCAAGTGTTTTTCCAGCTTACAATGGTACAGACAGGAGCCTGGG

E G P V L L V T V V T G G E V K K L K R  
GAAGGTCCTGTCCTCCTGGTGACAGTAGTTACGGGTGGAGAAGTGAAGAAGCTGAAGAGA

L T F Q F G D A R K D S S L H I T A A Q  
CTAACCTTTTCAGTTTGGTGATGCAAGAAAGGACAGTTCTCTCCACATCACTGCGGCCAG

P G D T G L Y L C A G A G S Q G N L I F  
CCTGGTGATACAGGCCTCTACCTCTGTGCAGGAGCGGGAAGCCAAGGAAATCTCATCTTT

G K G T K L S V K P N I Q N P D P A V Y  
GGAAAAAGGCACTAAACTCTCTGTAAACCAAATATCCAGAACCCTGACCCTGCCGTGTAC

Q L R D S K S S D K S V C L F T D F D S  
CAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTACCGATTTTGATTCT

Q T N V S Q S K D S D V Y I T D K T V L  
CAAAACAAATGTGTCACAAAGTAAGGATTCTGATGTGTATATCACAGACAAAACCTGTGCTA

D M R S M D F K S N S A V A W S N K S D  
GACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAATCTGAC

F A C A N A F N N S I I P E D T F F P S  
TTTGCATGTGCAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTCCCCAGC

&lt;TCR alfa linker c-jun&gt;

P E S S P G G R I A R L E E K V K T L K  
CCAGAAAGTTCCccccqqqGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACCTTGAAA

A Q N S E L A S T A N M L R E Q V A Q L  
GCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCACAGCTT

K Q K V M N Y \*

AAACAGAAAGTCATGAACTACTAG

## FIGURE 5

TCR beta&gt;

M V D G G I T Q S P K Y L F R K E G Q N  
ATGGTGGATGGTGAATCACTCAGTCCCCAAAGTACCTGTTTCAGAAAGGAAGGACAGAAT

V T L S C E Q N L N H D A M Y W Y R Q D  
GTGACCTGAGTTGTGAACAGAATTTGAACCACGATGCCATGTACTGGTACCGACAGGAC

P G Q G L R L I Y Y S Q I V N D F Q K G  
CCAGGGCAAGGGCTGAGATTGATCTACTACTCACAGATAGTAAATGACTTTTCAGAAAGGA

D I A E G Y S V S R E K K E S F P L T V  
GATATAGCTGAAGGTACAGCGTCTCTCGGGAGAAGAAGGAATCCTTTCTCTCTACTGTG

T S A Q K N P T A F Y L C A S S S R S S  
ACATCGGCCCCAAAAGAACCCGACAGCTTTCTATCTCTGTGCCAGTAGTTCGAGGAGCTCC

Y E Q Y F G P G T R L T V T E D L K N V  
TACGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAAAACGTT

F P P E V A V F E P S E A E I S H T Q K  
TTCCACCCGAGGTCGCTGTGTTTGAACCATCAGAAGCAGAGATCTCCACACCCAAAAG

A T L V C L A T G F Y P D H V E L S W W  
GCCCACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGGTGG

V N G K E V H S G V S T D P Q P L K E Q  
GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGAGCCCCTCAAGGAGCAG

P A L N D S R Y S L S S R L R V S A T F  
CCCGCCCTCAATGACTCCAGATACTCCCTGAGCAGCCGCCTGAGGGTCTCGGCCACCTTC

W Q N P R N H F R C Q V Q F Y G L S E N  
TGGCAGAACCCCGCAACCACTTCCGCTGTCAAGTCCAGTCTACGGGCTCTCGGAGAAT

D E W T Q D R A K P V T Q I V S A E A W  
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG  
<TCR beta linker c-fos>  
G R A D P G G L T D T L Q A E T D Q L E  
GGTAGAGCAGACccccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA  
D K K S A L Q T E I A N L L K E K E K L  
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAACTA  
E F I L A A Y \*  
GAGTTCATCCTGGCAGCTTACTAG

TCR beta>  
M V D G G I T Q S P K Y L F R K E G Q N  
ATGGTGGATGGTGGGAATCACTCAGTCCCCAAAGTACCTGTTTCAGAAAGGAAGGACAGAAT  
V T L S C E Q N L N H D A M Y W Y R Q D  
GTGACCCTGAGTTGTGAACAGAATTTGAACCACGATGCCATGTACTGGTACCGACAGGAC  
P G Q G L R L I Y Y S Q I V N D F Q K G  
CCAGGGCAAGGGCTGAGATTGATCTACTACTCACAGATAGTAAATGACTTTTCAGAAAGGA  
D I A E G Y S V S R E K K E S F P L T V  
GATATAGCTGAAGGGTACAGCGTCTCTCGGGAGAAGAAGGAATCCTTTCTCTCACTGTG  
T S A Q K N P T A F Y L C A S S S R S S  
ACATCGGCCCCAAAAGAACCCGACAGCTTTCTATCTCTGTGCCAGTAGTTTCGAGGAGCTCC  
Y E Q Y F G P G G T R L T V T E D L K N V  
TACGAGCAGTACTTCGGGCCGGGCACCAAGGCTCACGGTCACAGAGGACCTGAAAAACGTT  
F P P E V A V F E P S E A E I S H T Q K  
TTCCCACCCGAGGTGCTGTGTTTGAACCATCAGAAGCAGAGATCTCCACACCCAAAAG  
A T L V C L A T G F Y P D H V E L S W W  
GCCCACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGGTGG  
V N G K E V H S G V S T D P Q P L K E Q  
GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCTCAAGGAGCAG  
P A L N D S R Y S L S S R L R V S A T F  
CCCCGCCCTCAATGACTCCAGATACTCCCTGAGCAGCCGCTGAGGGTCTCGGCCACCTTC  
W Q N P R N H F R C Q V Q F Y G L S E N  
TGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT

8/60

D E W T Q D R A K P V T Q I V S A E A W  
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG

<TCR beta linker c-fos>

G R A D P G G L T D T L Q A E T D Q L E  
GGTAGAGCAGACccccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA

D K K S A L Q T E I A N L L K E K E K L  
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAACTA

linker Biotinylation tag>

E F I L A A Y G S G G G L N D I F E A Q  
GAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTGAAGCTCAG

K I E W H \*

AAAATCGAATGGCATTAA

8/60



FIGURE 7

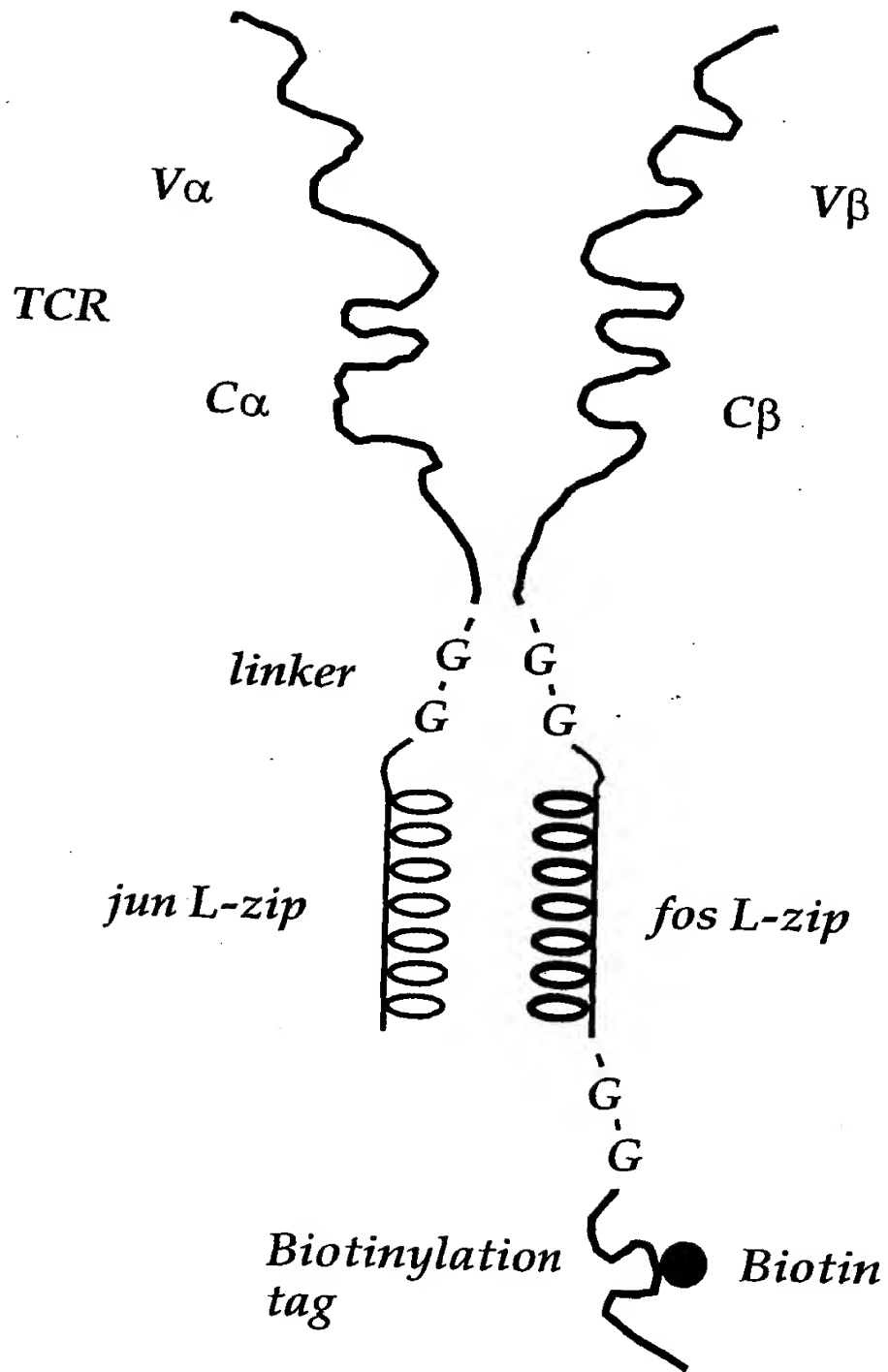
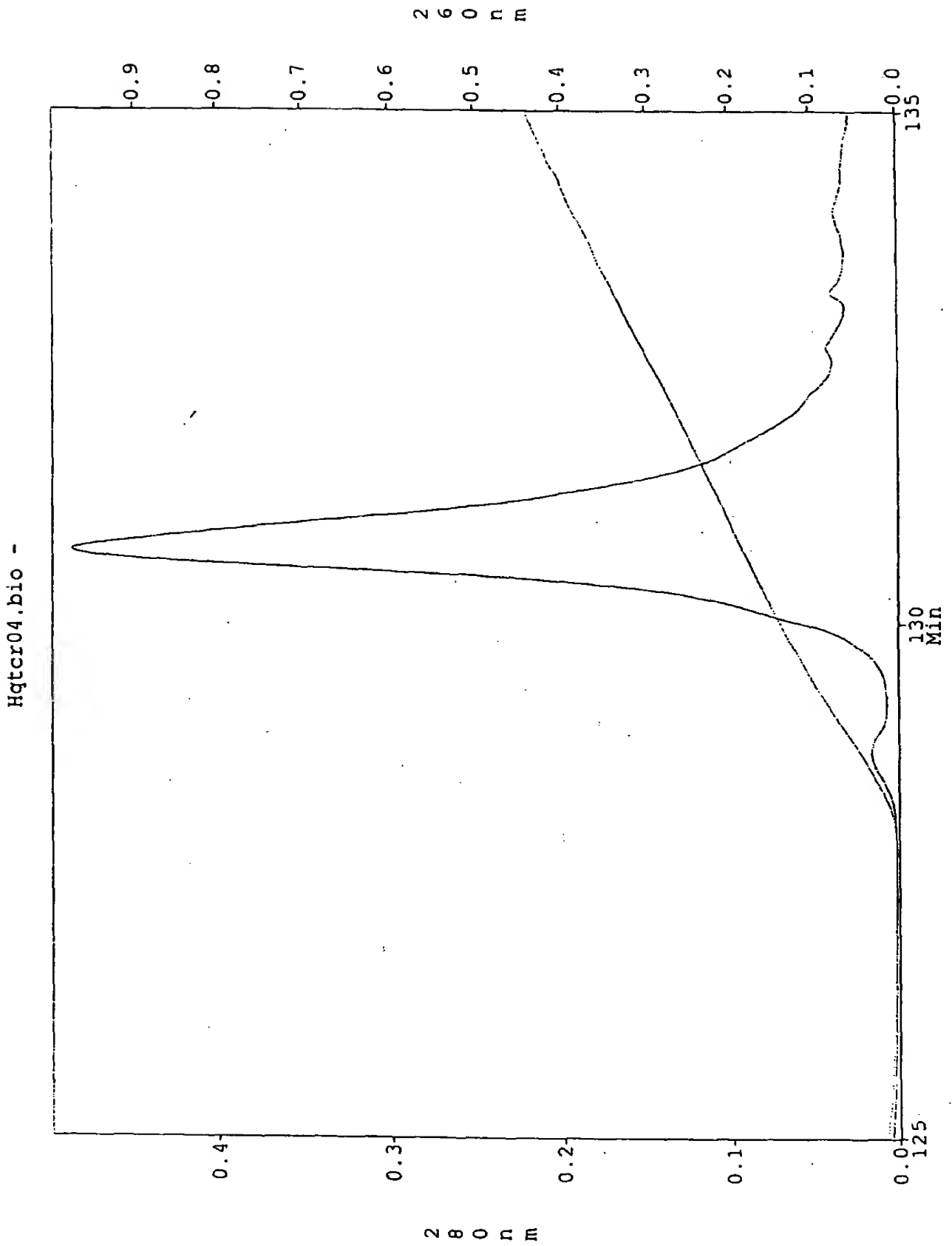
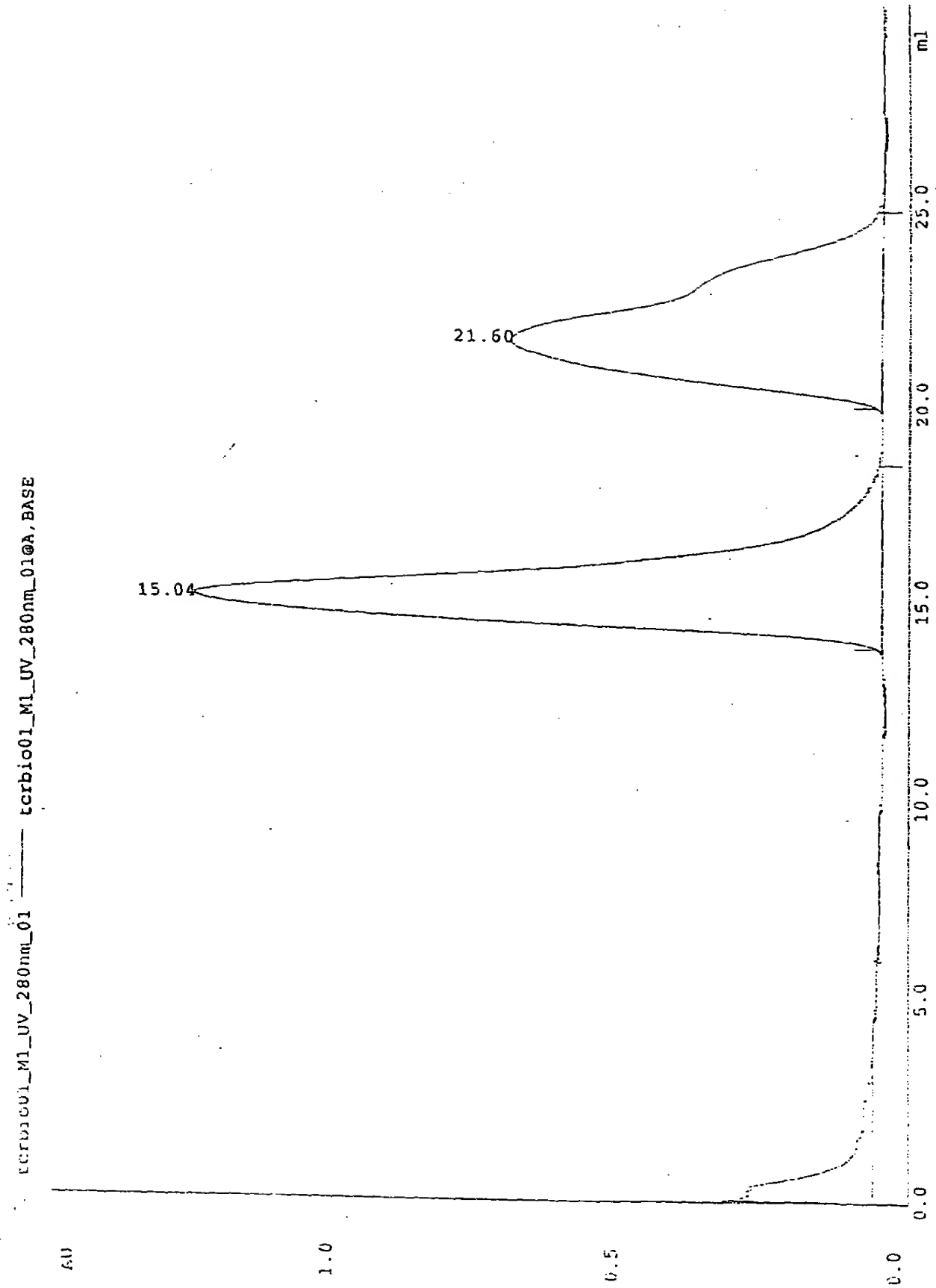


FIGURE 8



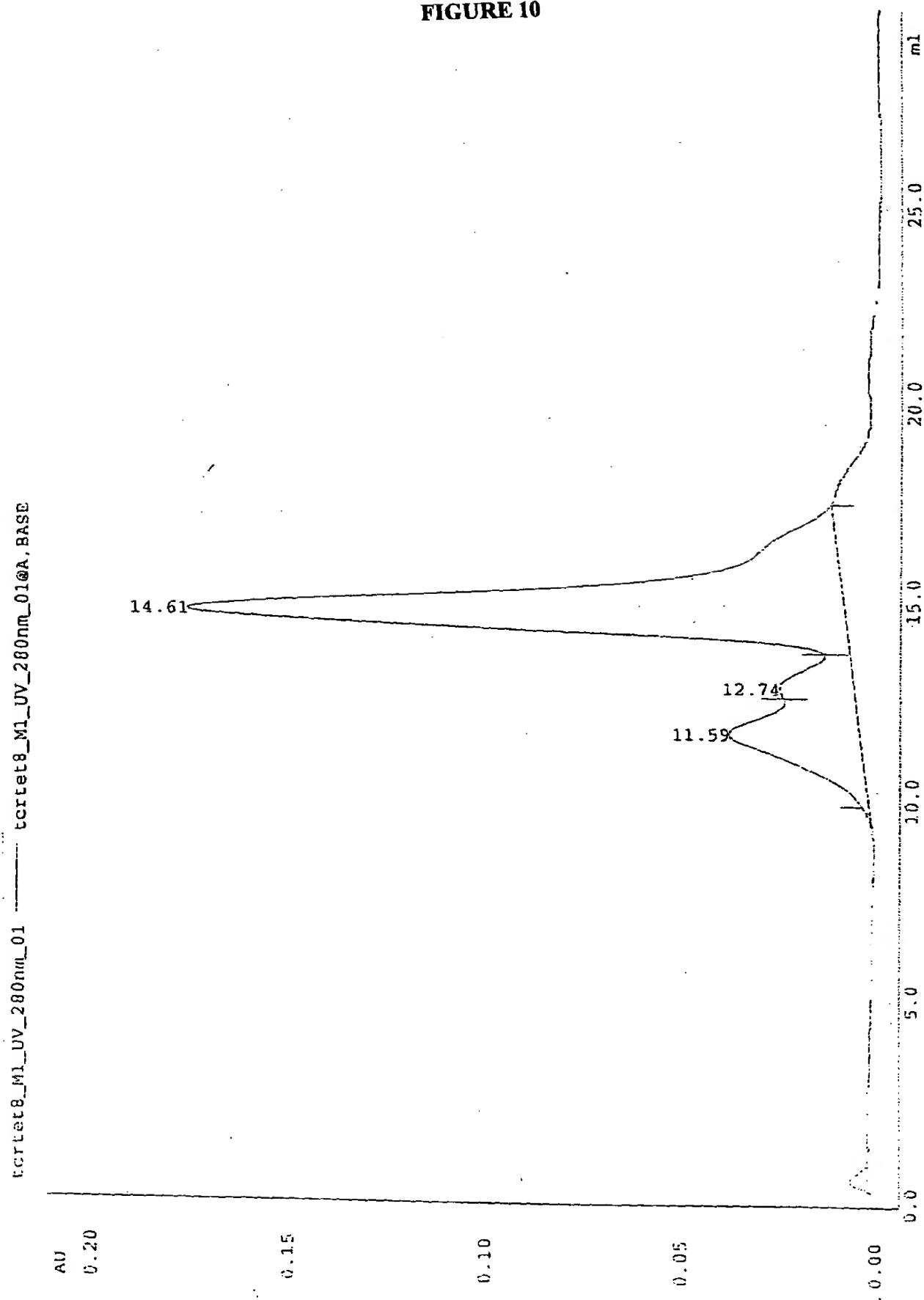
11/60

FIGURE 9



12/60

FIGURE 10



## FIGURE 11

TCR alfa&gt;

M Q K E V E Q N S G P L S V P E G A I A  
atgCAGAAGGAAGTGGAGCAGAACTCTGGACCCCTCAGTGTTCCAGAGGGAGCCATTGCC

S L N C T Y S D R G S Q S F F W Y R Q Y  
TCTCTCAACTGCACTTACAGTGACCGAGGTTCCCAGTCCTTCTTCTGGTACAGACAATAT

S G K S P E L I M S I Y S N G D K E D G  
TCTGGGAAAAGCCCTGAGTTGATAATGTCCATATACTCCAATGGTGACAAAGAAGATGGA

R F T A Q L N K A S Q Y V S L L I R D S  
AGGTTTACAGCACAGCTCAATAAAGCCAGCCAGTATGTTTCTCTGCTCATCAGAGACTCC

Q P S D S A T Y L C A V T T D S W G K L  
CAGCCCAGTGATTGAGCCACCTACCTCTGTGCCGTTACAAGTACAGCTGGGGGAAATTG

Q F G A G T Q V V V T P D I Q N P D P A  
CAGTTTGGAGCAGGGACCCAGGTTGTGGTCACCCCAGATATCCAGAACCCTGACCCTGCC

V Y Q L R D S K S S D K S V C L F T D F  
GTGTACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTACCGATTTT

D S Q T N V S Q S K D S D V Y I T D K T  
GATTCTCAAACAAATGTGTACAAAGTAAGGATTCTGATGTGTATATCACAGACAAAAC

V L D M R S M D F K S N S A V A W S N K  
GTGCTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAA

S D F A C A N A F N N S I I P E D T F F  
TCTGACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTC

&lt;TCR alfa linker c-jun&gt;

P S P E S S P G G R I A R L E E K V K T  
CCCAGCCCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACC

L K A Q N S E L A S T A N M L R E Q V A  
TTGAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCA

Q L K Q K V M N Y \*  
CAGCTTAAACAGAAAGTCATGAACTACTAG

TCR beta>  
M N A G V T Q T P K F Q V L K T G Q S M  
atgAACGCTGGTGTCACTCAGACCCCAAATTCAGGTCTGAAGACAGGACAGAGCATG  
  
T L Q C A Q D M N H E Y M S W Y R Q D P  
ACACTGCAGTGTGCCAGGATATGAACCATGAATACATGTCTGGTATCGACAAGACCCA  
  
G M G L R L I H Y S V G A G I T D Q G E  
GGCATGGGGCTGAGGCTGATTCATTACTCAGTTGGTGTGGTATCACTGACCAAGGAGAA  
  
V P N G Y N V S R S T T E D F P L R L L  
GTCCCCAATGGCTACAATGTCTCCAGATCAACCACAGAGGATTTCCTGGCTCAGGCTGCTG  
  
S A A P S Q T S V Y F C A S R P G L A G  
TCGGCTGCTCCCTCCAGACATCTGTGTACTTCTGTGCCAGCAGGCCGGGACTAGCGGGA  
  
G R P E Q Y F G P G T R L T V T E D L K  
GGGCGACCAGAGCAGTACTTCGGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAA  
  
N V F P P E V A V F E P S E A E I S H T  
AACGTGTTCCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCCACACC  
  
Q K A T L V C L A T G F Y P D H V E L S  
CAAAAGGCCACACTGGTGTGCCTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGC  
  
W W V N G K E V H S G V S T D P Q P L K  
TGGTGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGCAGCCCCCTCAAG  
  
E Q P A L N D S R Y A L S S R L R V S A  
GAGCAGCCCGCCCTCAATGACTCCAGATACgctCTGAGCAGCCGCCTGAGGGTCTCGGCC  
  
T F W Q N P R N H F R C Q V Q F Y G L S  
ACCTTCTGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCG  
  
E N D E W T Q D R A K P V T Q I V S A E  
GAGAATGACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAG  
  
<TCR beta linker c-fos>  
A W G R A D P G G L T D T L Q A E T D Q  
GCCTGGGGTAGAGCAGACccccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAA

L E D K K S A L Q T E I A N L L K E K E  
CTTGAAGACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAA

K L E F I L A A Y linker Biotinylation tag>  
AAACTAGAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTGA

A Q K I E W H \*  
GCTCAGAAAATCGAATGGCATTAAAGCTT

FIGURE 13

TCR alfa>  
M Q Q K N D D Q Q V K Q N S P S L S V Q  
atgCAACAGAAGAATGATGACCAGCAAGTTAAGCAAATTCACCATCCCTGAGCGTCCAG

E G R I S I L N C D Y T N S M F D Y F L  
GAAGGAAGAATTTCTATTCTGAACTGTGACTATACTAACAGCATGTTTGATTATTTCTTA

W Y K K Y P A E G P T F L I S I S S I K  
TGGTACAAAAAATACCCTGCTGAAGGTCCTACATTCCTGATATCTATAAGTTCCATTAAG

D K N E D G R F T V F L N K S A K H L S  
GATAAAATGAAGATGGAAGATTCAGTGTCTTCTTAAACAAAAGTGCCAAGCACCTCTCT

L H I V P S Q P G D S A V Y F C A A M E  
CTGCACATTGTGCCCTCCCAGCCTGGAGACTCTGCAGTGTACTTCTGTGCAGCAATGGAG

G A Q K L V F G Q G T R L T I N P N I Q  
GGAGCCCAGAAGCTGGTATTTGGCCAAGGAACCAGGCTGACTATCAACCCAAATATCCAG

N P D P A V Y Q L R D S K S S D K S V C  
AACCTTGACCCTGCCGTGTACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGC

L F T D F D S Q T N V S Q S K D S D V Y  
CTATTCACCGATTTTGATTCTCAAACAAATGTGTACAAAGTAAGGATTCTGATGTGTAT

I T D K T V L D M R S M D F K S N S A V  
ATCACAGACAAAATGTGCTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGTGTG

A W S N K S D F A C A N A F N N S I I P  
GCCTGGAGCAACAAATCTGACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCA

<TCR alfa linker c-jun>  
E D T F F P S P E S S P G G R I A R L E  
GAAGACACCTTCTTCCCCAGCCCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAG

E K V K T L K A Q N S E L A S T A N M L  
GAAAAAGTGAAAACCTTGAAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTC

R E Q V A Q L K Q K V M N Y \*  
AGGGAACAGGTGGCACAGCTTAAACAGAAAGTCATGAACTACTAG



**FIGURE 14**

TCR beta>  
M N A G V T Q T P K F Q V L K T G Q S M  
atgAACGCTGGTGTCACTCAGACCCCAAATTCCAGGTCCTGAAGACAGGACAGAGCATG  
  
T L Q C A Q D M N H E Y M S W Y R Q D P  
ACACTGCAGTGTGCCCAGGATATGAACCATGAATACATGTCCTGGTATCGACAAGACCCA  
  
G M G L R L I H Y S V G A G I T D Q G E  
GGCATGGGGCTGAGGCTGATTCTTACTCAGTTGGTGCTGGTATCACTGACCAAGGAGAA  
  
V P N G Y N V S R S T T E D F P L R L L  
GTCCCAATGGCTACAATGTCTCCAGATCAACCACAGAGGATTTCCCGCTCAGGCTGCTG  
  
S A A P S Q T S V Y F C A S S Y P G G G  
TCGGCTGCTCCCTCCCAGACATCTGTGTACTTCTGTGCCAGCAGTTACCaGGaGGGGGG  
  
F Y E Q Y F G P G T R L T V T E D L K N  
TTTTACGAGCAGTACTTCGGGCCGGGCACCAGGCTCACGGTCACAGAGGACCTGAAAAAC  
  
V F P P E V A V F E P S E A E I S H T Q  
GTGTTCCACCCGAGGTCGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCACACCCAA  
  
K A T L V C L A T G F Y P D H V E L S W  
AAGGCCACACTGGTGTGCTTGGCCACAGGCTTCTACCCCGACCACGTGGAGCTGAGCTGG  
  
W V N G K E V H S G V S T D P Q P L K E  
TGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGAGCCCCCTCAAGGAG  
  
Q P A L N D S R Y A L S S R L R V S A T  
CAGCCCGCCCTCAATGACTCCAGATACgctCTGAGCAGCCGCCTGAGGGTCTCGGCCACC  
  
F W Q D P R N H F R C Q V Q F Y G L S E  
TTCTGGCAGgACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAG  
  
N D E W T Q D R A K P V T Q I V S A E A  
AATGACGAGTGGACCCAGGATAGGGCCAAACCCGTCACCCAGATCGTCAGCGCCGAGGCC  
  
<TCR beta linker c-fos>  
W G R A D P G G L T D T L Q A E T D Q L  
TGGGGTAGAGCAGACccccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTT

E D K K S A L Q T E I A N L L K E K E K  
GAAGACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAA

L E F I L A A Y linker Biotinylation tag>  
 CTAGAGTTTCATCCTGGCAGCTTACgatatccGGTGGTGGTCTGAACGATATTTTTGAAGCT

Q K I E W H \*  
CAGAAAATCGAATGGCATTAGCTT

FIGURE 15

A

Poly-C 'anchor primer' :

Xho I

5'- TAA ATA CTC GAG GCG CGC CCC CCC CCC CCC CCC -3'

B

TCR  $\alpha$  chain constant region specific primer:

Xma I

5'- ATA TAA CCC GGG GAA CCA GAT CCC CAC AGG AAC TTT CTG GGC TGG GGA -3'

C

TCR  $\beta$  chain constant region specific primer:

Xma I

5'- ATA TAA CCC GGG GAA CCA GAT CCC CAC AGT CTG CTC TAC CCC AGG CC -3'

## FIGURE 16

A

*c-jun* 5' primer:

Xma I

5' - CATACACCCGGGGGTAGAATCGCCCGGCTGGAG -3'

B

*c-jun* 3' primer:

Xho I

5' - GTGTGTGCTCGAGGATCCTAGTAGTTCATGACTTCTGTTTAAGCTGTGC -3'

Bam HI

C

*c-fos* 5' primer:

Xma I

5' -CATACACCCGGGGGTCTGACTGATACACTCCAAGCGGAG -3'

D

*c-fos* 3' primer:

Xho I

5' - TGTGTGCTCGAGGATCCTAGTAAGCTGCCAGGATGAACTCTAGTTTTTC -3'

Bam HI

21/60

R I A R L E E K V K T L K A Q N S E L A  
5' - AGA ATC GCC CGG CTG GAG GAA AAA GTG AAA ACC TTG AAA GCT CAG AAC TCG GAG CTG GCG

S T A N M L R E Q V A Q L K Q K V M N Y  
TCC ACG GCC AAC ATG CTC AGG GAA CAG GTG GCA CAG CTT AAA CAG AAA GTC ATG AAC TAC -3'

**C-jun leucine zipper DNA and amino acid (one-letter code) sequences as fused to TCR alpha chains.**

B

5' - CTG ACT GAT ACA CTC CAA GCG GAG ACA GAC CAA CTA GAA GAT GAG AAG TCT GCT TTG CAG

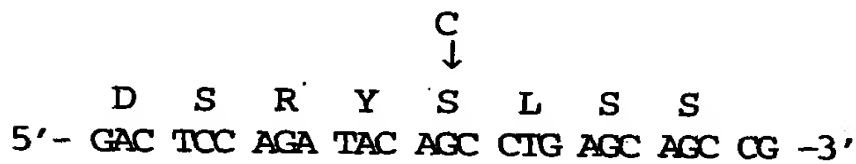
TTT GCC AAC CTG CTG AAG GAG AAG GAA AAA CTA GAG TTC ATC CTG GCA GCT TAC -3'

**DNA and amino acid (one-letter code) sequences as fused to TCR beta chains.**

FIGURE 18

**A**

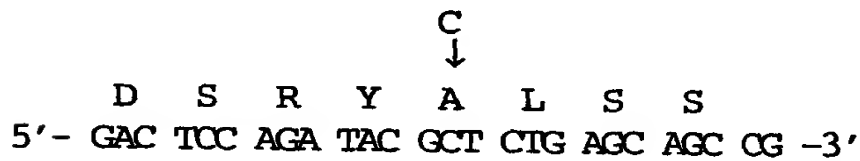
Mutation of cysteine to serine, forwards (sense) primer, indicating amino acid sequence and the mutation:

**B**

Mutation of cysteine to serine, backwards (nonsense) primer:

**C**

Mutation of cysteine to alanine, forwards (sense) primer, indicating amino acid sequence and the mutation:

**D**

Mutation of cysteine to alanine, backwards (nonsense) primer:



FIGURE 19

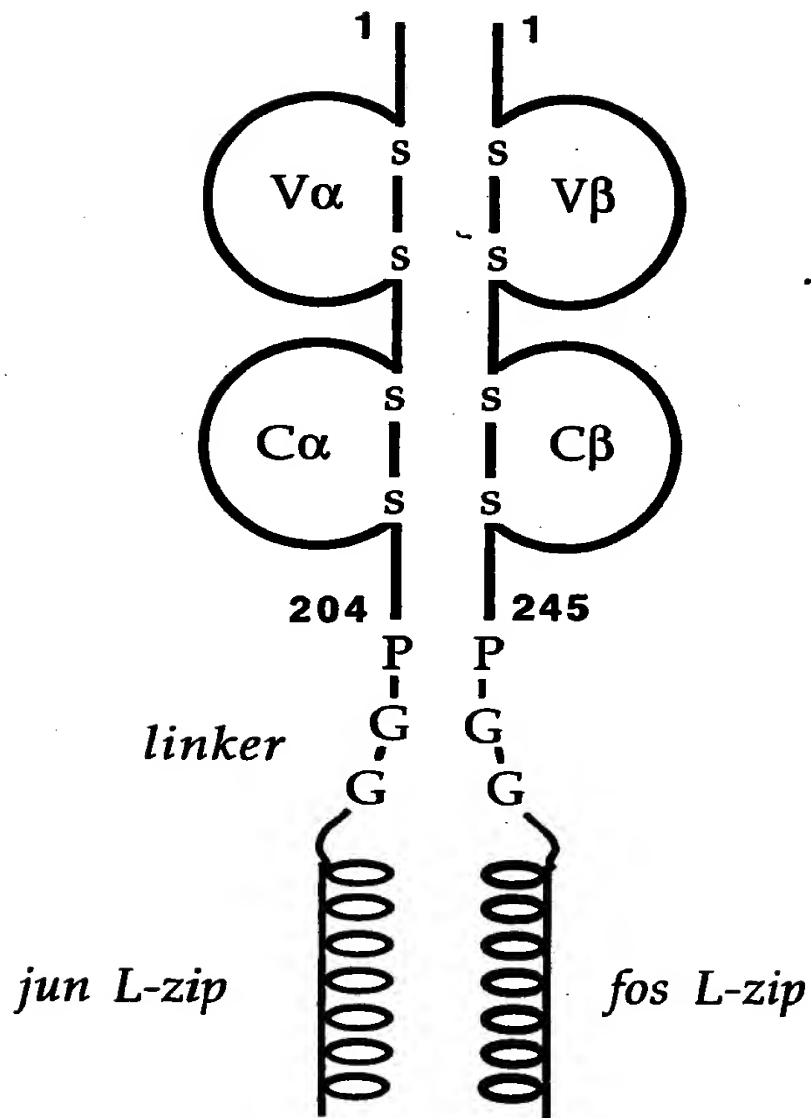


FIGURE 20

A

5' PCR primer for the human V $\alpha$ 10.2 chain of the JM22 Influenza Matrix peptide-HLA-A0201 restricted TCR:

5'- gctctagacat ATG M Q L L E Q S P Q F L  
Nde I CAa CTa CTa GAa CAa AGt CCT CAG TTT CTA

S I Q E  
AGC ATC CAA GAG G -3'

B

5' PCR primer for the human V $\beta$ 17 chain of the JM22 Influenza Matrix peptide-HLA-A0201 restricted TCR:

5'- gctctagacat ATG M V D G G I T Q S  
Nde I GTG GAT GGT GGA ATC ACT CAG TCC C -3'

C

5' PCR primer for the mouse V $\alpha$ 4 chain of the Influenza nucleoprotein peptide-H2-D<sup>b</sup> restricted TCR:

5'- gctctagacat ATG M D S V T Q M Q G Q V  
Nde I GAT TCT GTT ACT CAa ATG CAa GGt CAa GTG

T L S S  
ACC CTC TCA TCA G -3'



**FIGURE 20 (continued)**

D

**5' PCR primer for the mouse V $\beta$ 11 chain of the Influenza nucleoprotein peptide-H2-D<sup>b</sup> restricted TCR:**

5'- gctctagacat <sup>M</sup>ATG <sup>E</sup>GAA <sup>P</sup>CCA <sup>T</sup>ACA <sup>N</sup>AAT <sup>A</sup>GCT <sup>G</sup>GGT <sup>V</sup>GTt <sup>I</sup>ATC <sup>Q</sup>CAA

T P R H  
ACA CCT AGG CAC -3'

# E

5' PCR primer for the human Vo23 chain of the 003 HIV-1 Gag peptide-HLA-A0201 restricted TCR:

5'- ggaattccat atg AAA CAa GAG GTt ACa CAa ATT CC -3'  
Nde I

F

5' PCR primer for the human Vβ5.1 chain of the 003 HIV-1 Gag peptide-HLA-A0201 restricted TCR:

5'- ggaattccat <sup>M K A G V T Q T</sup> atg AAa GCT GCA GTt ACT CAA ACT CC -3'

FIGURE 20 (c ntinued)

G

5' PCR primer for the human V $\alpha$ 2.3 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted A6 TCR:

M   Q   K   E   V   E   Q   K

5' -cccccc cat ATG CAG AAG GAA GTG GAG CAG AAC -3'

Nde I

H

5' PCR primer for the human V $\beta$ 12.3 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted A6 TCR:

M   K   A   G   V   T   Q   T

5' - ccccccc cat ATG AAC GCT GGT GTC ACT CAG ACC -3'

Nde I

I

5' PCR primer for the human V $\alpha$ 17.2 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted B7 TCR:

M   Q   Q   K   N   D   D   Q   Q   V

5' -cccccc cat ATG CAA CAa AAa AAT GAT GAC CAG CAA GTT

Nde I

K   Q   N

AAG CAA AAT -3'

## FIGURE 20 (continued)

J

5' PCR primer for the human V $\beta$ 12.3 chain of the HTLV-1 Tax peptide-HLA-A0201 restricted B7 TCR:

5' -cccccc cat ATG AAC GCT GGT GTC ACT CAG ACC CCA AAA TTC  
                                   M  N  A  G  V  T  Q  T  P  K  F  
                                   Nde I

Q

CAG -3'

K

3' PCR primer for human C $\alpha$  chains, generally applicable:

5' - cataca ccc ggg GGA ACT TTC TGG GCT GGG GAA GAA GG -3'  
                                   Xma I

L

3' PCR primer for human C $\beta$  chains, generally applicable:

5' - cataca ccc ggg GTC TGC TCT ACC CCA GGC CTC -3'  
                                   Xma I

10  
 11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90  
 91  
 92  
 93  
 94  
 95  
 96  
 97  
 98  
 99  
 100  
 101  
 102  
 103  
 104  
 105  
 106  
 107  
 108  
 109  
 110  
 111  
 112  
 113  
 114  
 115  
 116  
 117  
 118  
 119  
 120  
 121  
 122  
 123  
 124  
 125  
 126  
 127  
 128  
 129  
 130  
 131  
 132  
 133  
 134  
 135  
 136  
 137  
 138  
 139  
 140  
 141  
 142  
 143  
 144  
 145  
 146  
 147  
 148  
 149  
 150  
 151  
 152  
 153  
 154  
 155  
 156  
 157  
 158  
 159  
 160  
 161  
 162  
 163  
 164  
 165  
 166  
 167  
 168  
 169  
 170  
 171  
 172  
 173  
 174  
 175  
 176  
 177  
 178  
 179  
 180  
 181  
 182  
 183  
 184  
 185  
 186  
 187  
 188  
 189  
 190  
 191  
 192  
 193  
 194  
 195  
 196  
 197  
 198  
 199  
 200  
 201  
 202  
 203  
 204  
 205  
 206  
 207  
 208  
 209  
 210  
 211  
 212  
 213  
 214  
 215  
 216  
 217  
 218  
 219  
 220  
 221  
 222  
 223  
 224  
 225  
 226  
 227  
 228  
 229  
 230  
 231  
 232  
 233  
 234  
 235  
 236  
 237  
 238  
 239  
 240  
 241  
 242  
 243  
 244  
 245  
 246  
 247  
 248  
 249  
 250  
 251  
 252  
 253  
 254  
 255  
 256  
 257  
 258  
 259  
 260  
 261  
 262  
 263  
 264  
 265  
 266  
 267  
 268  
 269  
 270  
 271  
 272  
 273  
 274  
 275  
 276  
 277  
 278  
 279  
 280  
 281  
 282  
 283  
 284  
 285  
 286  
 287  
 288  
 289  
 290  
 291  
 292  
 293  
 294  
 295  
 296  
 297  
 298  
 299  
 300  
 301  
 302  
 303  
 304  
 305  
 306  
 307  
 308  
 309  
 310  
 311  
 312  
 313  
 314  
 315  
 316  
 317  
 318  
 319  
 320  
 321  
 322  
 323  
 324  
 325  
 326  
 327  
 328  
 329  
 330  
 331  
 332  
 333  
 334  
 335  
 336  
 337  
 338  
 339  
 340  
 341  
 342  
 343  
 344  
 345  
 346  
 347  
 348  
 349  
 350  
 351  
 352  
 353  
 354  
 355  
 356  
 357  
 358  
 359  
 360  
 361  
 362  
 363  
 364  
 365  
 366  
 367  
 368  
 369  
 370  
 371  
 372  
 373  
 374  
 375  
 376  
 377  
 378  
 379  
 380  
 381  
 382  
 383  
 384  
 385  
 386  
 387  
 388  
 389  
 390  
 391  
 392  
 393  
 394  
 395  
 396  
 397  
 398  
 399  
 400  
 401  
 402  
 403  
 404  
 405  
 406  
 407  
 408  
 409  
 410  
 411  
 412  
 413  
 414  
 415  
 416  
 417  
 418  
 419  
 420  
 421  
 422  
 423  
 424  
 425  
 426  
 427  
 428  
 429  
 430  
 431  
 432  
 433  
 434  
 435  
 436  
 437  
 438  
 439  
 440  
 441  
 442  
 443  
 444  
 445  
 446  
 447  
 448  
 449  
 450  
 451  
 452  
 453  
 454  
 455  
 456  
 457  
 458  
 459  
 460  
 461  
 462  
 463  
 464  
 465  
 466  
 467  
 468  
 469  
 470  
 471  
 472  
 473  
 474  
 475  
 476  
 477  
 478  
 479  
 480  
 481  
 482  
 483  
 484  
 485  
 486  
 487  
 488  
 489  
 490  
 491  
 492  
 493  
 494  
 495  
 496  
 497  
 498  
 499  
 500  
 501  
 502  
 503  
 504  
 505  
 506  
 507  
 508  
 509  
 510  
 511  
 512  
 513  
 514  
 515  
 516  
 517  
 518  
 519  
 520  
 521  
 522  
 523  
 524  
 525  
 526  
 527  
 528  
 529  
 530  
 531  
 532

F A C A N A F N N S I I P E D T F F P S  
TTTGCATGTGCAAAACGCCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTCCCCAGC

A Q N S E L A S T A N M L R E Q V A Q L  
GCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCACAGCTT

K Q K V M N Y \*  
AAACAGAAAGTCATGAACTACTAG

FIGURE 22

## TCR beta&gt;

M V D G G I T Q S P K Y L F R K E G Q N  
ATGGTGGATGGTGGGAATCACTCAGTCCCCAAAGTACCTGTTTCAGAAAGGAAGGACAGAAT

V T L S C E Q N L N H D A M Y W Y R Q D  
GTGACCCCTGAGTTGTGAACAGAATTTGAACCACGATGCCATGTACTGGTACCGACAGGAC

P G Q G L R L I Y Y S Q I V N D F Q K G  
CCAGGGCAAGGGCTGAGATTGATCTACTACTCACAGATAGTAAATGACTTTTCAGAAAGGA

D I A E G Y S V S R E K K E S F P L T V  
GATATAGCTGAAGGGTACAGCGTCTCTCGGGAGAAGAAGGAATCCTTTCTCTCTCACTGTG

T S A Q K N P T A F Y L C A S S S R S S<sub>q</sub>  
ACATCGGCCCAAAGAACCACGACAGCTTTCTATCTCTGTGCCAGTAGTTTCGAGGAGCTCC

Y E Q Y F G P G T R L T V T E D L K N V  
TACGAGCAGTACTTTCGGGCCGGGCACACAGGCTCACGGTCACAGAGGACCTGAAAAACGTT

F P P E V A V F E P S E A E I S H T Q K  
TTCCACCCGAGGTGCTGTGTTTGAACCATCAGAAGCAGAGATCTCCACACCCCAAAG

A T L V C L A T G F Y P D H V E L S W W  
GCCCACTGGTGTGCTGGCCACAGGCTTCTACCCGACCACGTGGAGCTGAGCTGGTGG

V N G K E V H S G V S T D P Q P L K E Q  
GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGAGCCCCCTCAAGGAGCAG

P A L N D S R Y C L S S R L R V S A T F  
CCCGCCCTCAATGACTCCAGATACTGCCTGAGCAGCCGCTGAGGGTCTCGGCCACCTTC

W Q N P R N H F R C Q V Q F Y G L S E N  
TGGCAGAACCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT

D E W T Q D R A K P V T Q I V S A E A W  
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCAACCAGATCGTCAGCGCCGAGGCCTGG

<TCR beta linker c-fos>

G R A D P G G L T D T L Q A E T D Q L E  
GGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA

D K K S A L Q T E I A N L L K E K E K L  
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAACTA

E F I L A A Y \*  
GAGTTCATCCTGGCAGCTTACTAG

552790 " 594460

**FIGURE 23**

TCR alfa&gt;

M N Y S P A L V T V M L F V F G R T H G  
ATGAACTATTCTCCAGCTTTAGTGACTGTGATGCTGTTTGTTGGGAGGACCCATGGA

D S V T Q M Q G Q V T L S E D D F L F I  
GACTCAGTAAACCCAGATGCAAGGTCAAGTGACCCCTCTCAGAAGACGACTTCCTATTTTATA

N C T Y S T T W Y P T L F W Y V Q Y P G  
AACTGTA CTTAT TCAACCA TGGTACCCGACTCTTTTCTGGTATGTCCAATATCCTGGA

E G P Q L L L K V T T A N N K G I S R G  
GAAGGTCACAGCTCTTTTGAAAGTCACAACAGCCAACAACAAGGGAATCAGCAGAGGT

F E A T Y D K G T T S F H L Q K A S V Q  
TTTGAAGCTACATATGATAAAGGAACAACGTCCTTCCACTTGCAGAAAGCCTCAGTGCAG

E S D S A V Y Y C V L G D R Q G G R A L  
GAGTCAGACTCTGCTGTGTACTACTGTGTGCTGGGTGATCGACAGGGAGGCAGAGCTCTG

I F G T G T T V S V S P N I Q N P E P A  
ATATTTTGGAACAGGAACACGGTATCAGTCAGCCCCAACATCCAGAACCCAGAACCTGCT

V Y Q L K D P R S Q D S T L C L F T D F  
GTGTACCAGTTAAAAGATCCTCGGTCTCAGGACAGCACCCCTCTGCCTGTTCAACCGACTTT

D S Q I N V P K T M E S G T F I T D K T  
GACTCCCAAATCAATGTGCCGAAAACCATGGAATCTGGAACGTTCACTACTGACAAAAC

V L D M K A M D S K S N G A I A W S N Q  
GTGCTGGACATGAAAGCTATGGATTCCAAGAGCAATGGGGCCATTGCCTGGAGCAACCAG

T S F T C Q D I S K E T N A T Y P S S D  
ACAAGCTTCACCTGCCAAGATATCTCCAAAGAGACCAACGCCACCTACCCCGAGTTCAGAC

<TCR alfa linker c-jun>

V P G G R I A R L E E K V K T L K A Q N  
GTTcccgggGGTAGAATCGCCCGCTGGAGGAAAAAGTGAAAACCTTGAAAGCTCAGAAC

S E L A S T A N M L R E Q V A Q L K Q K  
TCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAAACAGGTGGCACAGCTTAAACAGAAA

V M N Y \*  
GTCATGA ACTACTAG

FIGURE 24

TCR beta>  
M K A G V T Q T P R Y L I K T R G Q Q V  
ATGAAAGCTGGAGTTACTCAAACCTCCAAGATATCTGATCAAAACGAGAGGACAGCAAGTG  
T L S C S P I S G H R S V S W Y Q Q T P  
ACACTGAGCTGCTCCCTATCTCTGGGCATAGGAGTGTATCCTGGTACCAACAGACCCCA  
G Q G L Q F L F E Y F S E T Q R N K G N  
GGACAGGGCCTTCAGTTCTCTTTGAATACTTCAGTGAGACACAGAGAAACAAAGGAAAC  
F P G R F S G R Q F S N S R S E M N V S  
TTCCCTGGTTCGATTCTCAGGGCGCCAGTTCTCTAACTCTCGCTCTGAGATGAATGTGAGC  
T L E L G D S A L Y L C A S S F D S G N  
ACCTTGGAGCTGGGGGACTCGGCCCTTTATCTTTGCGCCAGCAGCTTCGACAGCGGGAAT  
S P L H F G N G T R L T V T E D L N K V  
TCACCCCTCCACTTTGGGAACGGGACCAGGCTCACTGTGACAGAGGACCTGAACAAGGTG  
F P P E V A V F E P S E A E I S H T Q K  
TTCCACCCCGAGGTGCTGTGTGTGAGCCATCAGAAGCAGAGATCTCCACACCCAAAAG  
A T L V C L A T G F F P D H V E L S W W  
GCCCACTGGTGTGCCTGGCCACAGGCTTCTTCCCTGACCACGTGGAGCTGAGCTGGTGG  
V N G K E V H S G V S Q D P Q P L K E Q  
GTGAATGGGAAGGAGGTGCACAGTGGGGTTCAGCCAGGACCCCGAGCCCTCAAGGAGCAG  
P A L N D S R Y S L S S R L R V S A T F  
CCCGCCCTCAATGACTCCAGATACAGCCTGAGCAGCCGCTGAGGGTCTCGGCCACCTTC  
W Q N P R N H F R C Q V Q F Y G L S E N  
TGGCAGAACCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT  
D E W T Q D R A K P V T Q I V S A E A W  
GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCTGG  
<TCR beta linker c-fos>  
G R A D P G G L T D T L Q A E T D Q L E  
GGTAGAGCAGACCCCGGGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA  
D K K S A L Q T E I A N L L K E K E K L  
GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAACTA  
E F I L A A Y \*  
GAGTTCATCCTGGCAGCTTACTAG

FIGURE 25

## TCR alfa&gt;

M K Q E V T Q I P A A L S V P E G E N L  
ATGAAACAAGAAGTTACACAGATTCTCGCAGCTCTGAGTGTCCAGAAGGAGAAAACCTTG

V L N C S F T D S A I Y N L Q W F R Q D  
GTTCTCAACTGCAGTTTCACTGATAGCGCTATTACAAACCTCCAGTGGTTTAGGCAGGAC

P G K G L T S L L L I Q S S Q R E Q T S  
CCTGGGAAAGGTCTCACATCTCTGTGCTTATTCACTCAAGTCAGAGAGAGCAAACAAGT

G R L N A S L D K S S G R S T L Y I A A  
GGAAGACTTAATGCCTCGCTGGATAAATCATCAGGACGTAGTACTTTATACATTGCAGCT

S Q P G D S A T Y L C A V T N F N K F Y  
TCTCAGCCTGGTGACTCAGCCACCTACCTCTGTGCTGTGACCAACTTCAACAAATTTTAC

F G S G T K L N V K P N I Q N P D P A V  
TTTGGATCTGGGACCAAACCTCAATGTAAAACCAAATATCCAGAACCCTGACCCTGCCGTG

Y Q L R D S K S S D K S V C L F T D F D  
TACCAGCTGAGAGACTCTAAATCCAGTGACAAGTCTGTCTGCCTATTACCGATTTTGAT

S Q T N V S Q S K D S D V Y I T D K T V  
TCTCAAACAAATGTGTCAAAAGTAAGGATTCTGATGTGTATATCACAGACAAAACCTGTG

L D M R S M D F K S N S A V A W S N K S  
CTAGACATGAGGTCTATGGACTTCAAGAGCAACAGTGCTGTGGCCTGGAGCAACAAATCT

D F A C A N A F N N S I I P E D T F F P  
GACTTTGCATGTGCAAACGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTCCCC

## &lt;TCR alfa linker c-jun&gt;

S P E S S P G G R I A R L E E K V K T L  
AGCCCAGAAAGTTCCcccgggGGTAGAATCGCCCGGCTGGAGGAAAAAGTGAAAACCTTG

K A Q N S E L A S T A N M L R E Q V A Q  
AAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCACAG

L K Q K V M N Y \*  
CTTAAACAGAAAGTCATGAACTACTAG

66799-66799



FIGURE 26

TCR beta>  
 M K A G V T Q T P R Y L I K T R G Q Q V  
 ATGAAAGCTGGAGTTACTCAAACCTCCAAGATATCTGATCAAAACGAGAGGACAGCAAGTG  
 T L S C S P I S G H R S V S W Y Q Q T P  
 ACACTGAGCTGCTCCCCATCTCTGGGCATAGGAGTGTATCCTGGTACCAACAGACCCCA  
 G Q G L Q F L F E Y F S E T Q R N K G N  
 GGACAGGGCCTTCAGTTCCCTCTTTGAATACTTCAGTGAGACACAGAGAAACAAAGGAAAC  
 F P G R F S G R Q F S N S R S E M N V S  
 TTCCCTGGTCGATTCTCAGGGCGCCAGTTCTCTAACTCTCGCTCTGAGATGAATGTGAGC  
 T L E L G D S A L Y L C A S S F D S G N  
 ACCTTGAGCTGGGGGACTCGGCCCTTTATCTTTGCGCCAGCAGCTTCGACAGCGGGAAT  
 S P L H F G N G T R L T V T E D L N K V  
 TCACCCCTCCACTTTGGGAACGGGACCAGGCTCACTGTGACAGAGGACCTGAACAAGGTG  
 F P P E V A V F E P S E A E I S H T Q K  
 TTCCCACCCGAGGTGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCACACCCAAAAG  
 A T L V C L A T G F F P D H V E L S W W  
 GCCCACTGGTGTGCTGGCCACAGGCTTCTTCCCTGACCACGTGGAGCTGAGCTGGTGG  
 V N G K E V H S G V S Q D P Q P L K E Q  
 GTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCCAGGACCCGAGCCCTCAAGGAGCAG  
 P A L N D S R Y S L S S R L R V S A T F  
 CCCGCCCTCAATGACTCCAGATACAGCCTGAGCAGCCGCTGAGGGTCTCGGCCACCTTC  
 W Q N P R N H F R C Q V Q F Y G L S E N  
 TGGCAGAACCCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAGAAT  
 D E W T Q D R A K P V T Q I V S A E A W  
 GACGAGTGGACCCAGGATAGGGCCAAACCTGTCACCCAGATCGTCAGCGCCGAGGCCTGG  
 <TCR beta linker c-fos>  
 G R A D P G G L T D T L Q A E T D Q L E  
 GGTAGAGCAGACccccgggGGTCTGACTGATACACTCCAAGCGGAGACAGATCAACTTGAA  
 D K K S A L Q T E I A N L L K E K E K L  
 GACAAGAAGTCTGCGTTGCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAACTA  
 E F I L A A Y \*  
 GAGTTCATCCTGGCAGCTTACTAG

**FIGURE 27**

TCR  $\alpha$ fa>  
M Q K E V E Q N S G P L S V P E G A I A  
atgCAGAAGCAAGTGGAGCAGAACTCTGGACCCCTCAGTGTCCAGAGGGAGCCATTGOC  
  
S L N C T Y S D R G S Q S F F W Y R Q Y  
TCTCTCAACTGCACCTTACAGTGAACGAGGTTCCAGTCCCTTCTTCTGGTACAGACAATAT  
  
S G K S P E L I M S I Y S N G D K E D G  
TCTGGGAAAAGCCCTGAGTTGATAATGTGCATATACTCCANTGGTCACAAAGAGATGGA  
  
R F T A Q L N K A S Q Y V S L L I R D S  
AGGTTTACAGCACAGCTCAATAAAGCCAGCCAGTATGTTTCTCTGCTCATCAGACTCC  
  
Q P S D S A T Y L C A V T T D S W G K L  
CAGCCAGTGAATTCAGCCACCTACCTCTGTGCGGTACAACTGACAGCTGGGGCAATTG  
  
Q F G A G T Q V V V T P D I Q N P D P A  
CAGTTTGAGCAGGGACCCAGGTTGTGGTCACCCAGATATCCAGAACCCCTGACCCCTGCC  
  
V Y Q L R D S K S S D K S V C L F T D F  
GTGTACAGCTCAGACTCTAAATCCAGTACAACTCTGTCTGCCCTATTACCGATTTT  
  
D S Q T N V S Q S K D S D V Y I T D K T  
GATTCTCAACCAAATGTGTGCACAAAGTAAGGATTCTGTATGTGTATATCAGACAAAAT  
  
V L D M R S M D F K S N S A V A W S N K  
GTGCTAGACATGAGGTCTATGGACTTCAACAGCAACAGTGTCTGTGGCCTGGAGCAACAAA  
  
S D F A C A N A F N N S I I P E D T F F  
TCTGACTTTGCATGTGCAAAAGCCTTCAACAACAGCATTATTCCAGAAGACACCTTCTTC  
  
<TCR  $\alpha$ fa linker c-jun>  
P S P E S S P G G R I A R L E E K V K T  
CCAGCCCAAGAGTTCCcggggGGTAGAATCGCCCGGCTGGAGCAAAAAGTCAAAACC  
  
L K A Q N S E L A S T A N M L R E Q V A  
TTGAAAGCTCAGAACTCGGAGCTGGCGTCCACGGCCAACATGCTCAGGGAACAGGTGGCA  
  
Q L K Q K V M N Y \*  
CAGCTTAACACAAAAGTCATGAACACTAG

FIGURE 28

## TCR beta&gt;

M N A G V T Q T P K F Q V L K T G Q S M  
atgAACGCTGGTGTCACTCAGACCCCAAAATTCCAGGTCCTGAAGACAGGACAGAGCATG

T L Q C A Q D M N H E Y M S W Y R Q D P  
ACACTGCAGTGTGCCCAGGATATGAACCATGAATACATGTCTGGTATGACAGACCCA

G M G L R L I H Y S V G A G I T D Q G E  
GGCATGGGGCTGAGGCTGATTCACTACTCAGTTGGTGTCTGGTATCACTGACCAAGGAGAA

V P N G Y N V S R S T T E D F P L R L L  
GTCCCCAATGGCTACAATGTCTCCAGATCAACCAAGAGGATTTCCTGGCTCAGGCTGCTG

S A A P S Q T S V Y F C A S R P G L A G  
TGGCTGCTCTCTCCAGACATCTGTGTACTTCTGTGCCAGCAGGCGGGGACTAGCGGGA

G R P E Q Y F G P G T R L T V T E D L K  
GGGGACCAAGCAGTACTTGGGGCGGGCAACAGGCTCAAGGTACAGAGGACTGAA

N V F P P E V A V F E P S E A E I S H T  
AACGTGTTCACCCAGGTCCTGTGTCTTGAGCATCAGAAGCAGAGATCTCCACACC

Q K A T L V C L A T G F Y P D H V E L S  
CAAAAGGCCACACTGGTGTGGCTGGCCACAGGCTTCTAACCAGACAGTGGAGCTGAGC

W W V N G K E V H S G V S T D P Q P L K  
TGGTGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGACAGCCCTCAAG

E Q P A L N D S R Y A L S S R L R V S A  
GAGCAGCCCGCCCTCAATGACTCCAGATAGCTCTGAGCAGCCCGCTGAGGGTCTGGCC

T F W Q N P R N H F R C Q V Q F Y G L S  
ACCTTCTGGCAGAACCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTAGGGCTCTCG

E N D E W T Q D R A K P V T Q I V S A E  
GAGAATGACGAGTGGACCCAGGATAGGGCCAAACCTGTCAACCAAGATCGTACGCGCGAG

## &lt;TCR beta linker c-fos&gt;

A W G R A D P G G L T D T L Q A E T D Q  
GCCTGGGGTAGAGCAGACCCCGGGGCTGACTGATACACTCCAGCGGAGACAGATCAA

Continued .....

55/100 "6644660

— — — 22 —

linker Biotinylation tag  
K L E F I L A A Y G S G G G L N D I F E  
AAACTAGAGTTTCATCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTGA

A Q K I E W H \*  
GCTCAGAAAATCGAATGGCATTAAAGCTT

**FIGURE 29**

TCR alfa&gt;

M Q Q K N D D Q Q V K Q N S P S L S V Q  
atgCAACAGAGCAATGATGACCAGCAAGTTAAGCAAATTCAACATCCTGAGCGTCCAG

E G R I S I L N C D Y T N S M F D Y F L  
GAAGGAAGAAATTTCTATTCTGAACTGIGACTATACTAAACAGCATGTTTGATTATTTCCTA

W Y K K Y P A E G P T F L I S I S S I K  
TGGTACAAAAAATACCTGCTGAAGTCTCATTTCTGATATCTATAAGTTCCATTAG

D K N E D G R F T V F L N K S A K H L S  
GATAAAATGAAGATGGAAGATTCACTGTCTTCTTAACAAAAGTGCCAAGCACTCTCT

L H I V P S Q P G D S A V Y F C A A M E  
CTGCACATTGTGCGCCTCCAGCCTGGAGACTCTGCAGTGTACTTCTGTGCAGCAATGGAG

G A Q K L V F G Q G T R L T I N P N I Q  
GGAGCCCAAGCTGGTATTTTGGCCAAGGAACAGGCTGACTATCAACCCAAATATCCAG

N P D P A V Y Q L R D S K S S D K S V C  
A A C C C T G A C C C T G C C G T G T A C C A G C T G A G A G A C T C T A A A T C A G T G A C A A G T C T G T C T G C

L F T D F D S Q T N V S Q S K D S D V Y  
CTATTCAACGATTTTTGATTCTCAAACAAATGTGTCAAAAGTAAGGATTCTGATGTGTAAT

I T D K T V L D M R S M D F K S N S A V  
ATCACAGACAAAACGTGTGCTAGACATGAGGTCATGGACTTCAAGAGCAACAGTGTCTGTG

A W S N K S D F A C A N A F N N S I I P  
GCGCTGGAGCAACAATCTGACTTTGTCATGTGCAAAAGCGCTTCAACAACAGCATTATTCCA

&lt;TCR alfa linker c-jun&gt;

E D T F F P S P E S S P G G R I A R L E  
GAAGACACCTTCTTCCCCAGCCCGAAGGTTCCcggggGGTAGAATCGCCCGGTGGAG

E K V K T L K A Q N S E L A S T A N M L  
GAAAAAGTGAAAACCTTGAAAGCTCAGAACTGGGAGCTGGGGTCCACGGCCAAACATGCTC

R E Q V A Q L K Q K V M N Y \*  
AGGGAACAGGTGGCACAGCTTAAACAGAAAGTCATGA ACTACTAG

TCR beta>  
M N A G V T Q T P K F Q V L K T G Q S M  
atgAAGCTGGTGTCACTCAGACCCCAAAATTCCAGGTCTGAAGACAGGACAGAGCATG  
  
T L Q C A Q D M N H E Y M S W Y R Q D P  
ACACTGCAGTGTGGCCAGGATATGAACCATGAATACATGTCTCGGTATGACAAGACCCA  
  
G M G L R L I H Y S V G A G I T D Q G E  
GGCATGGGGCTGAGGCTGATTCACTTACTCAGTTGGTGGCTGGTATCACTGACCAAGGAGAA  
  
V P N G Y N V S R S T T E D F P L R L L  
GTCCCCAATGGCTACAAATGTCTOCAGATCAACCACAGAGGATTTCCCGCTCAGGCTGCTG  
  
S A A P S Q T S V Y F C A S S Y P G G G  
TCGGCTGCTCCCTCCAGACATCTGTGTACTTCTGTGGCCAGCAGTTACCAgGgAGGGGGGG  
  
F Y E Q Y F G P G T R L T V T E D L K N  
TTTTACGAGCAGTACTTCGGGGCCGGGCCACCAGGCTCACGGTACAGAGGAOCTGAAAAC  
  
V F P P E V A V F E P S E A E I S H T Q  
GTGTTCCCACCCGAGGTGGCTGTGTTTGAGCCATCAGAAGCAGAGATCTCCACACCCAA  
  
K A T L V C L A T G F Y P D H V E L S W  
AAGGCCACACTGGTGTGGCTGGGCACAGGCTTCTACCCCGACCAAGTGGAGCTGAGCTGG  
  
W V N G K E V H S G V S T D P Q P L K E  
TGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCCGAGCCCTCAAGGAG  
  
Q P A L N D S R Y A L S S R L R V S A T  
CAGCCCGCCCTCAATGACTOCAGATAAGCTCTGAGCAGCCCGCTGAGGGTCTGGCCACC  
  
F W Q D P R N H F R C Q V Q F Y G L S E  
TTCTGGCAGgACCCCGCAACCACTTCCGCTGTCAAGTCCAGTTCTACGGGCTCTCGGAG  
  
N D E W T Q D R A K P V T Q I V S A E A  
AATGACGAGTGGACCCAGGATAGGGGCCAAACCCGTCACCCAGATCGTTCAGCGCCGAGGCC

Continued.....

<TCR beta linker c-fos>  
W G R A D P G G L T D T L Q A E T D Q L  
TGGGGTAGAGCAGACcccccgggGGTCTGACTGATACACTCCAAAGCGGAGACAGATCAACTT  
  
E D K K S A L Q T E I A N L L K E K E K  
GAAGACAAGAAGTCTGGGTTCAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAAAAA  
  
linker Biotinylation tag  
L E F I L A A Y G S G G G L N D I F E A  
CTAGAGTTTCATCTGGCAGCTTAccgatccGGTGGTGGTCTGAACGATATTTTTGAGCTT  
  
Q K I E W H \*  
CAGAAAANTCGAATGGCATTAAGCTT

FIGURE 31

TCR beta>  
M N A G V T Q T P K F Q V L K T G Q S M  
atgAAGCGTGGTGTCACTCAGACCCCAAAATTCAGGTCTGAAGACAGGACAGAGCATG  
  
T L Q C A Q D M N H E Y M S W Y R Q D P  
ACACTGCAGTGTGCCCAGCATATCAACCATGAATACATGTCTGGTATGACAGACCCA  
  
G M G L R L I H Y S V G A G I T D Q G E  
GGCATGGGGCTGAGGCTGATTCATTACTCAGTGGTGTCTGGTATCACTGACCAAGGAGAA  
  
V P N G Y N V S R S T T E D F P L R L L  
GTCCCCAATGGCTACAAATGTCTCCAGATCAACACAGAGGATTTCCCGCTCAGGCTGCTG  
  
S A A P S Q T S V Y F C A S R P G L A G  
TGGCTGCTCCCTCCAGACATCTGTGTACTTCTGTGCCAGCAGGCGGGGACTAGGGGA  
  
G R P E Q Y F G P G T R L T V T E D L K  
GGGCGACACAGACAGTACTTGGGGCGGGGCACAGGCTCAGGGTCACAGAGGAOCTGAAA  
  
N V F P P E V A V F E P S E A E I S H T  
AAGGTGTTCOCCACCCGAGGTGGCTGTGTTTGAGGCATCAGAGCAGAGATCTCCACACC  
  
Q K A T L V C L A T G F Y P D H V E L S  
CAAAAGGCCACACTGGTGTGCTGGCCACAGGCTTCTACCCCGACCAAGTGGAGCTGAGC  
  
W W V N G K E V H S G V S T D P Q P L K  
TGGTGGGTGAATGGGAAGGAGGTGCACAGTGGGGTCAGCACAGACCCGAGCCCCCTCAG  
  
E Q P A L N D S R Y A L S S R L R V S A  
GAGCAGCCCCGCTCAATCACTCCAGATACTCTGAGCAGCCCGCTGAGGGTCTGGGC  
  
T F W Q D P R N H F R C Q V Q F Y G L S  
ACCTTCTGGCAGAACCCCCGCAACACTTCCGCTGTCAAGTCCAGTTCACGGGGCTCTCG  
  
E N D E W T Q D R A K P V T Q I V S A E  
GAGAATGACAGTGGACCCAGGATAGGGCCAAACCTGTCAACAGATGTCTAGGGCCGAG

Continued.....

55/130 55/130 55/130



## FIGURE 31 (continued)

<TCR beta linker c-fos>

A W G R A D P G G L T D T L Q A E T D Q  
 GCCTGGGGTAGAGCAGACcccgggGGTCTGACTGATACACTCCAGCGGAGACAGATCAA

L E D K K S A L Q T E I A N L L K E K E  
 CTTGACAGACAAGAAGTCTGGGTGCGAGACCGAGATTGCCAATCTACTGAAAGAGAAGGAA

linker Biotinylation tag>

K L E F I L A A Y G S G G G L N D I F E  
 AAAC TAGAGTTCATCCTGGCAGCTTACggatccGGTGGTGGTCTGAACGATATTTTGA

A Q K I E W H \*  
 GCTCAGAAAATCGAATGGCATTAGCTT

ESTD "ESTD" ESTD

Linker $\leftrightarrow$  fos

L E D K K S A L Q T E I A N L  
CTT GAA GAC AAG AAG TCT GCG TIG CAG ACC GAG ATT GCC AAT CTA

Ker-> <- biotinylation tag

W H \*

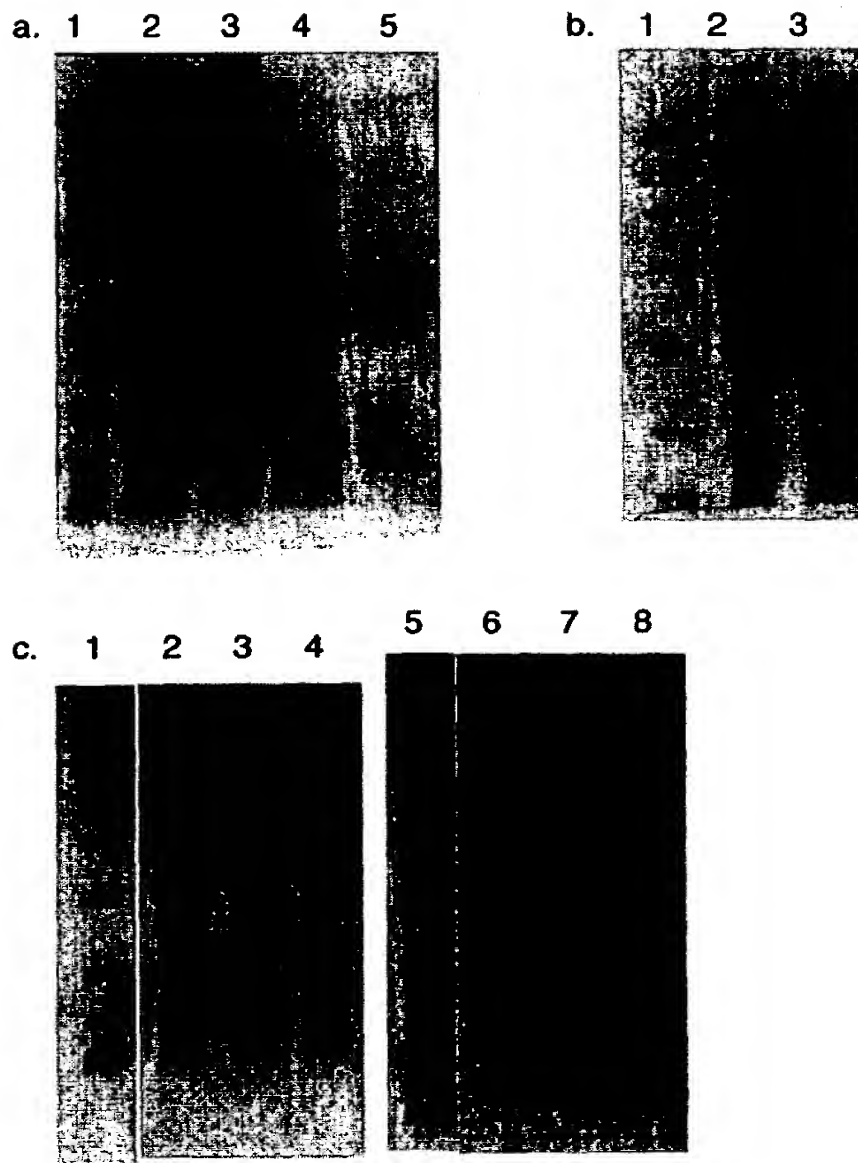
TGG CAT TAA GCT T -3'  
Hind III

**A**

5' -ACACAC GGA TCC GTA AGC TGC GAC GAT GAA CTC GAT TTT CTT-  
3' SECTION

540 ID NO. 78

FIGURE 34



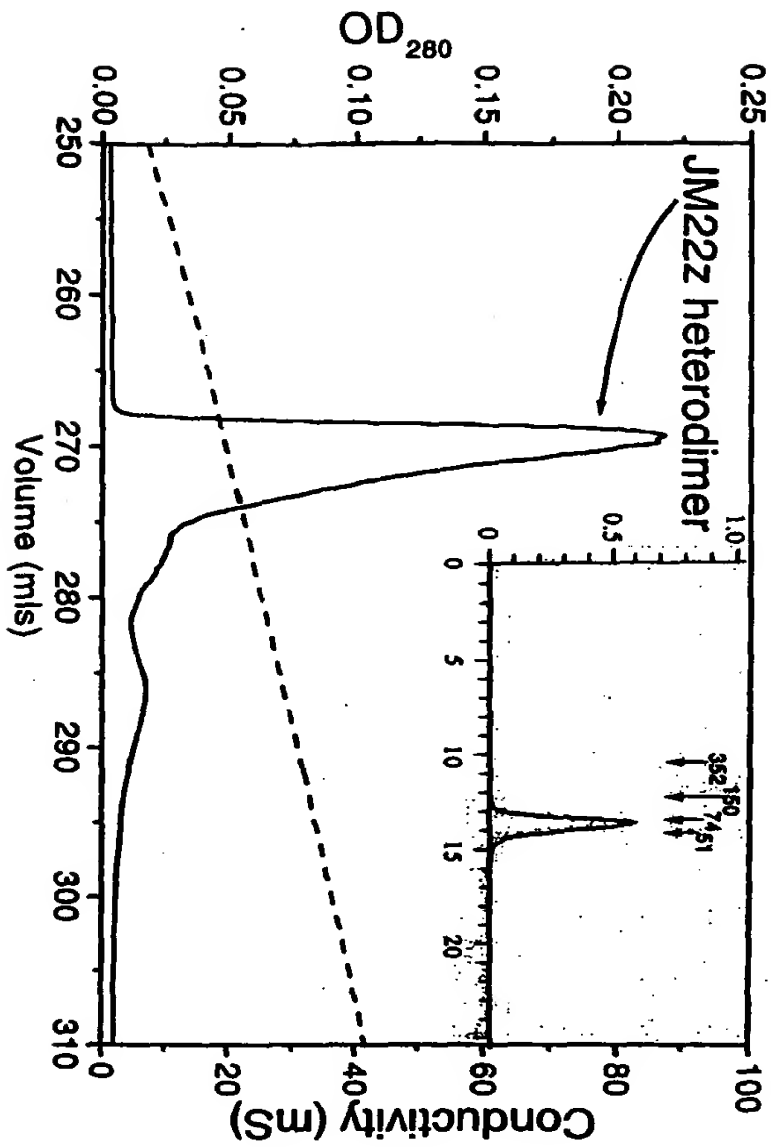


FIGURE 35

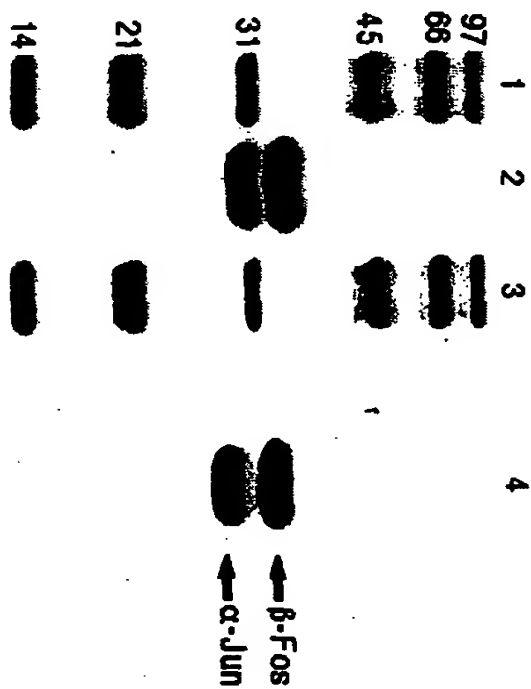


FIGURE 36

Year	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
Population	1,000,000	1,050,000	1,100,000	1,150,000	1,200,000	1,250,000	1,300,000	1,350,000	1,400,000	1,450,000	1,500,000	1,550,000	1,600,000	1,650,000	1,700,000	1,750,000	1,800,000	1,850,000	1,900,000	1,950,000	2,000,000	2,050,000	2,100,000	2,150,000	2,200,000	2,250,000	2,300,000	2,350,000	2,400,000	2,450,000	2,500,000	2,550,000	2,600,000	2,650,000	2,700,000	2,750,000	2,800,000	2,850,000	2,900,000	2,950,000	3,000,000	3,050,000	3,100,000	3,150,000	3,200,000	3,250,000	3,300,000	3,350,000	3,400,000	3,450,000	3,500,000	3,550,000	3,600,000	3,650,000	3,700,000	3,750,000	3,800,000	3,850,000	3,900,000	3,950,000	4,000,000	4,050,000	4,100,000	4,150,000	4,200,000	4,250,000	4,300,000	4,350,000	4,400,000	4,450,000	4,500,000	4,550,000	4,600,000	4,650,000	4,700,000	4,750,000	4,800,000	4,850,000	4,900,000	4,950,000	5,000,000	5,050,000	5,100,000	5,150,000	5,200,000	5,250,000	5,300,000	5,350,000	5,400,000	5,450,000	5,500,000	5,550,000	5,600,000	5,650,000	5,700,000	5,750,000	5,800,000	5,850,000	5,900,000	5,950,000	6,000,000	6,050,000	6,100,000	6,150,000	6,200,000	6,250,000	6,300,000	6,350,000	6,400,000	6,450,000	6,500,000	6,550,000	6,600,000	6,650,000	6,700,000	6,750,000	6,800,000	6,850,000	6,900,000	6,950,000	7,000,000	7,050,000	7,100,000	7,150,000	7,200,000	7,250,000	7,300,000	7,350,000	7,400,000	7,450,000	7,500,000	7,550,000	7,600,000	7,650,000	7,700,000	7,750,000	7,80																																																																

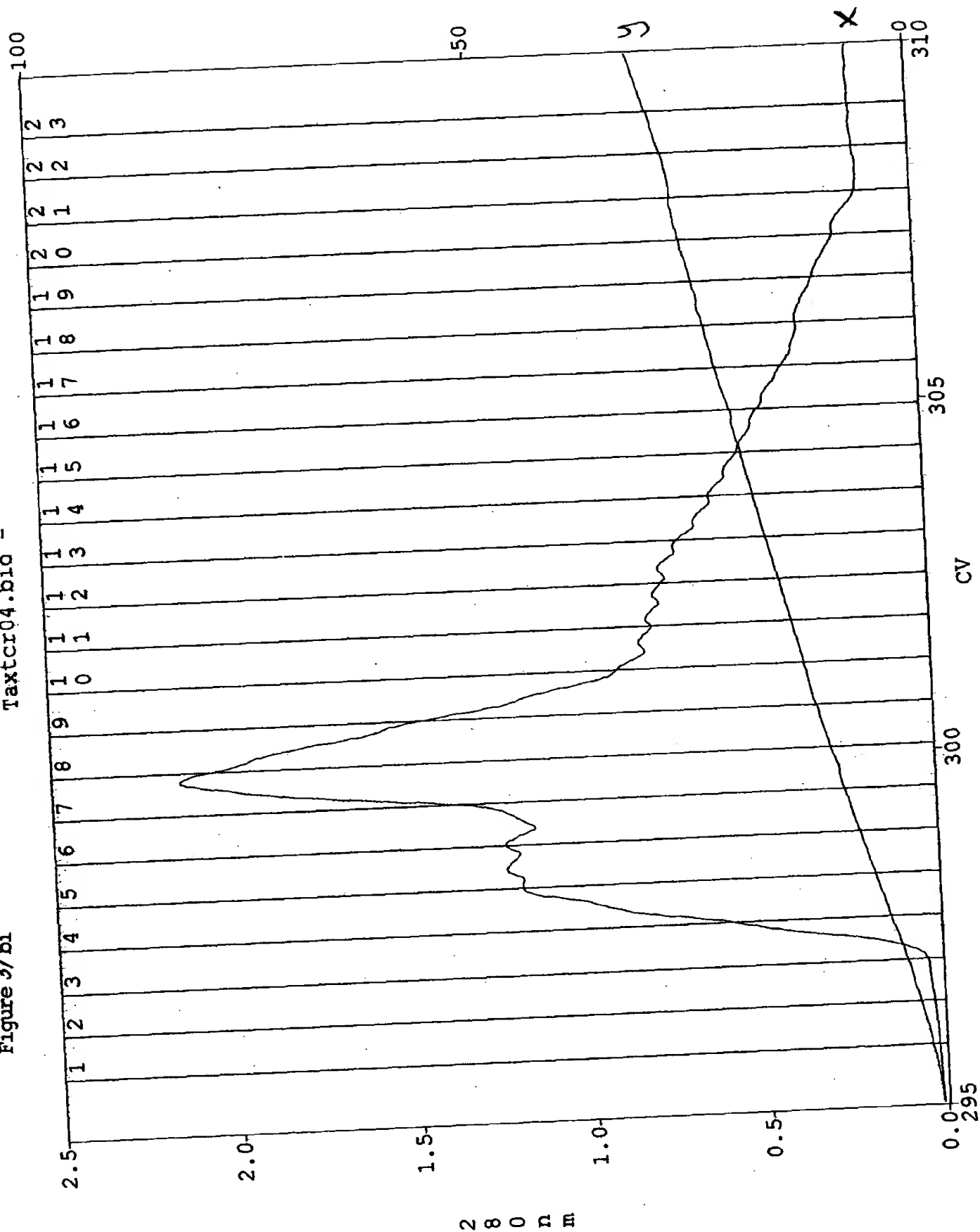
Taxtcr05.bio -



552790" 695446.60

Figure 37 bi

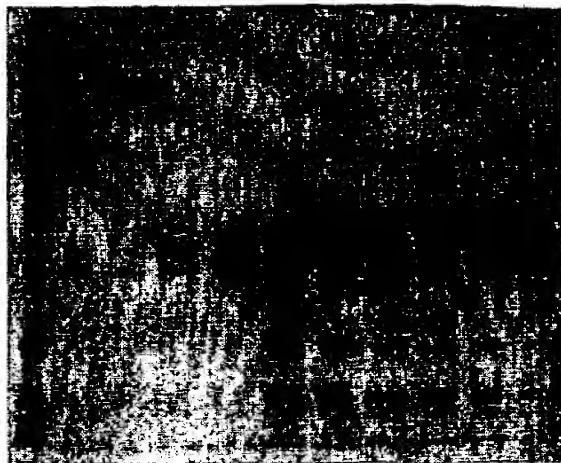
Taxtcr04.bio -



47/60  
ms

**FIGURE 37**

**a.ii. 1 2 3 4 5 6 7 8 9 10 11**



a.iii.      1      2



**b.ii. 1 2 3 4 5 6 7 8 9 10**



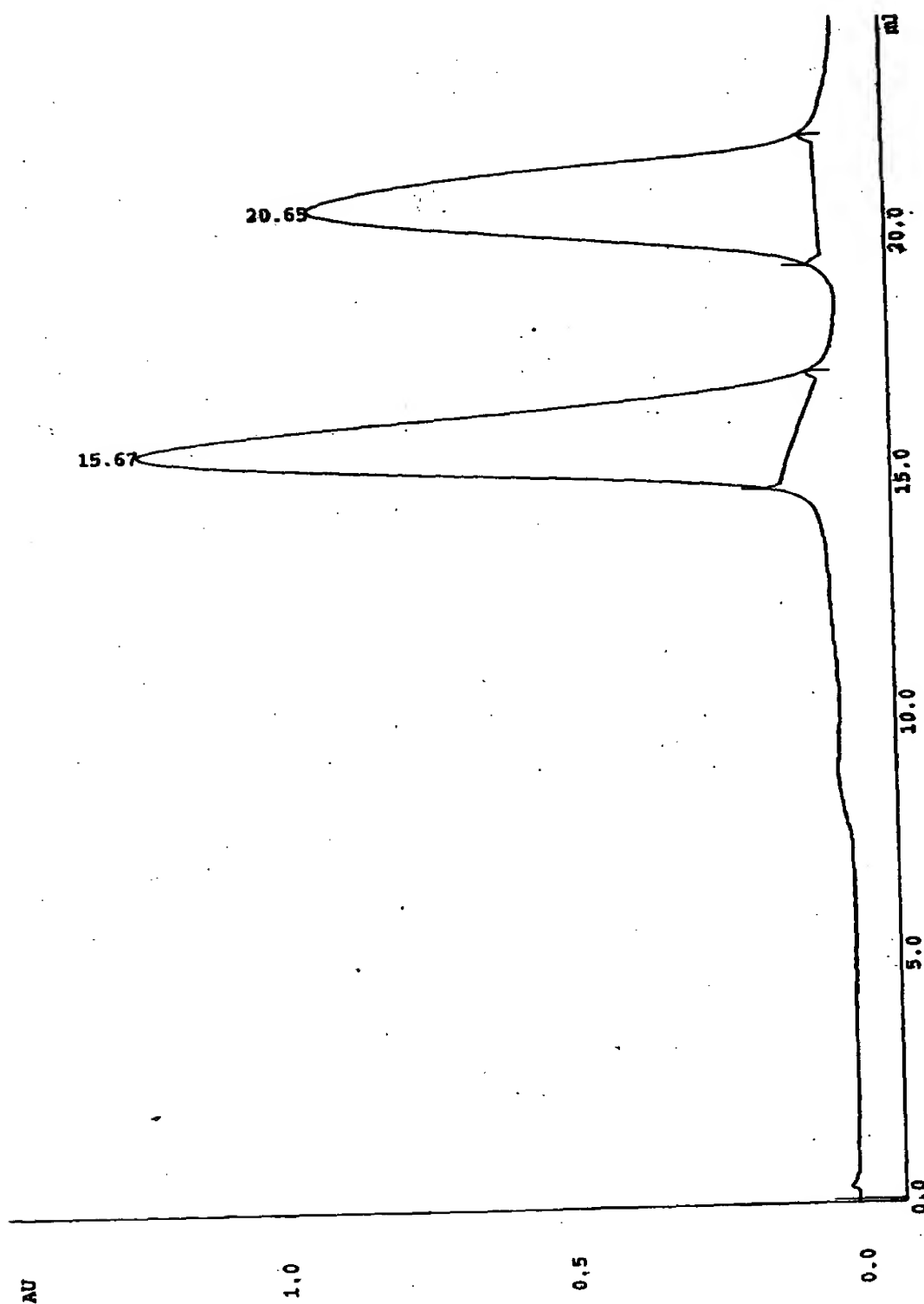
**b.iii. 1      2      3**





49/60

FIGURE 38



50/60

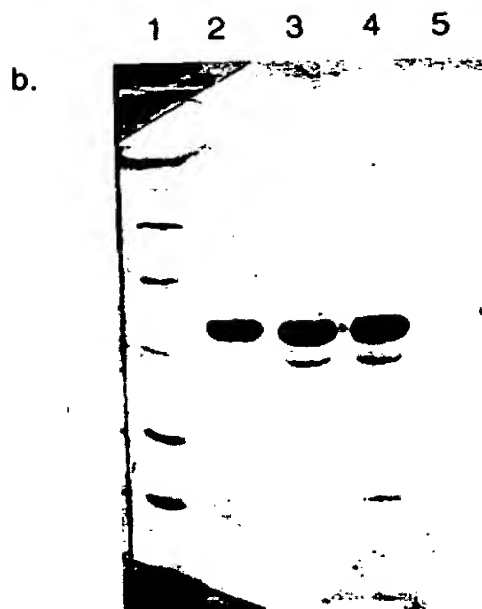
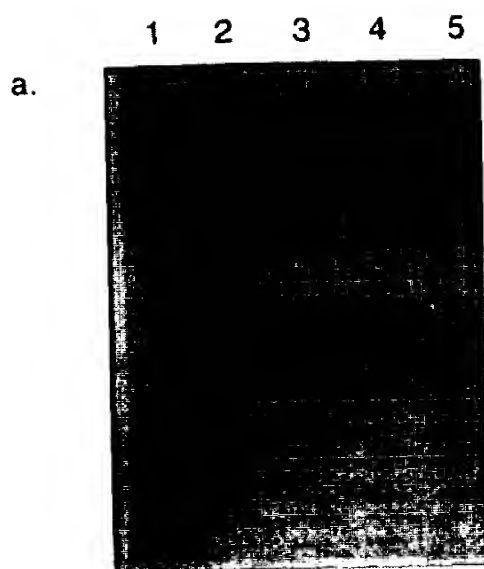
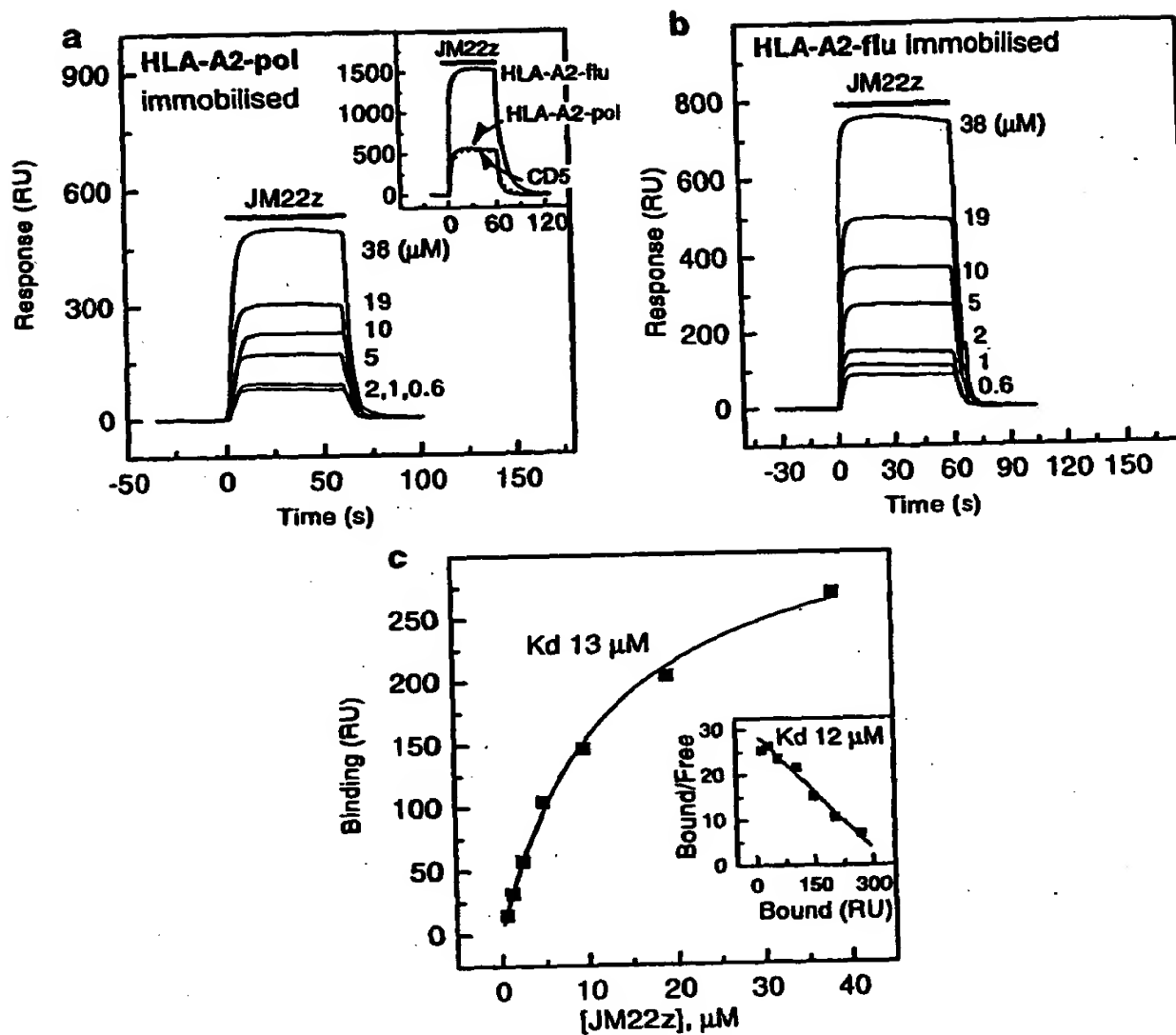


Figure 39

FIGURE 40



664727 694260

jon02b Fc=1 - 1

FIGURE 41

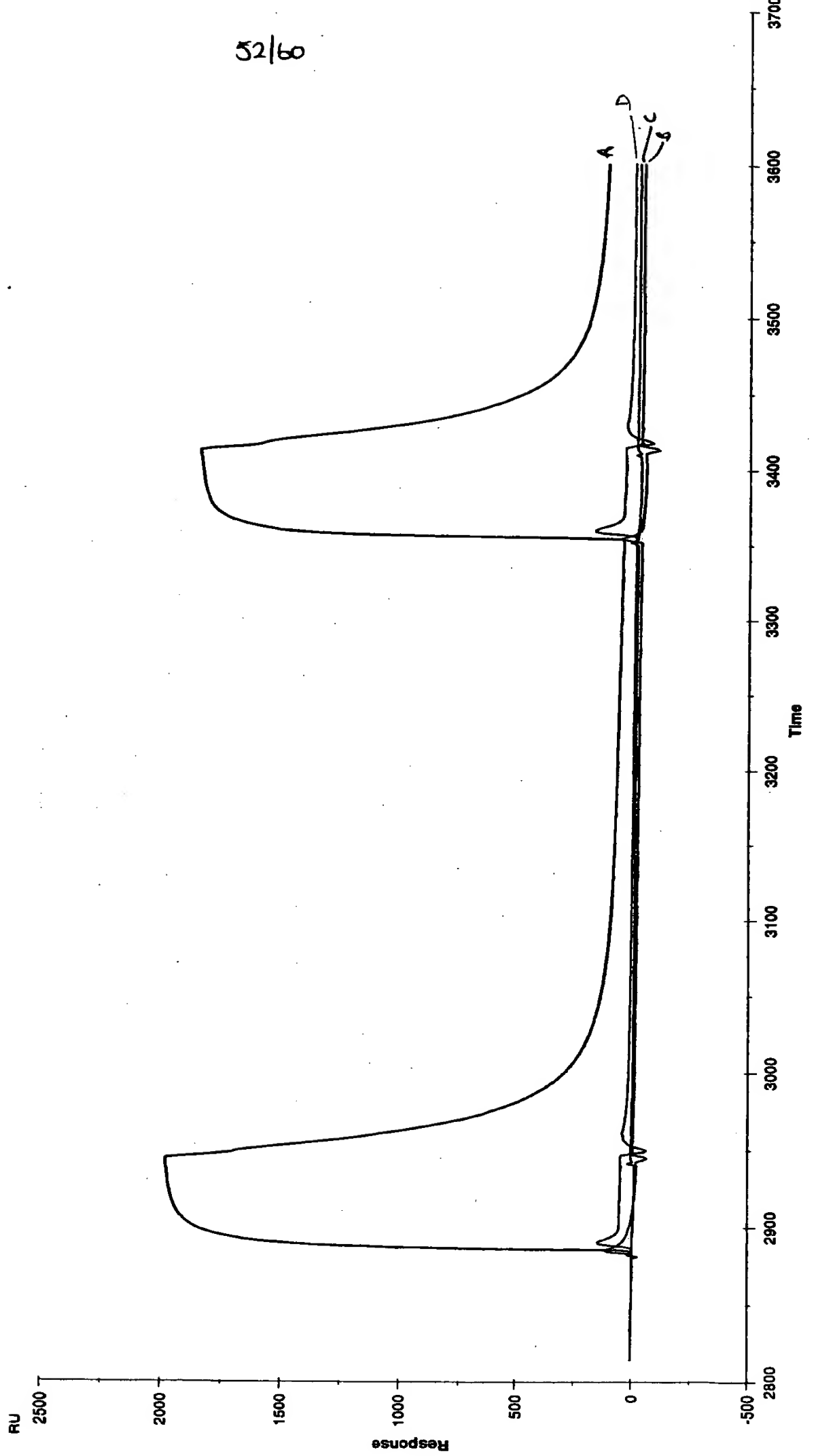


FIGURE 42

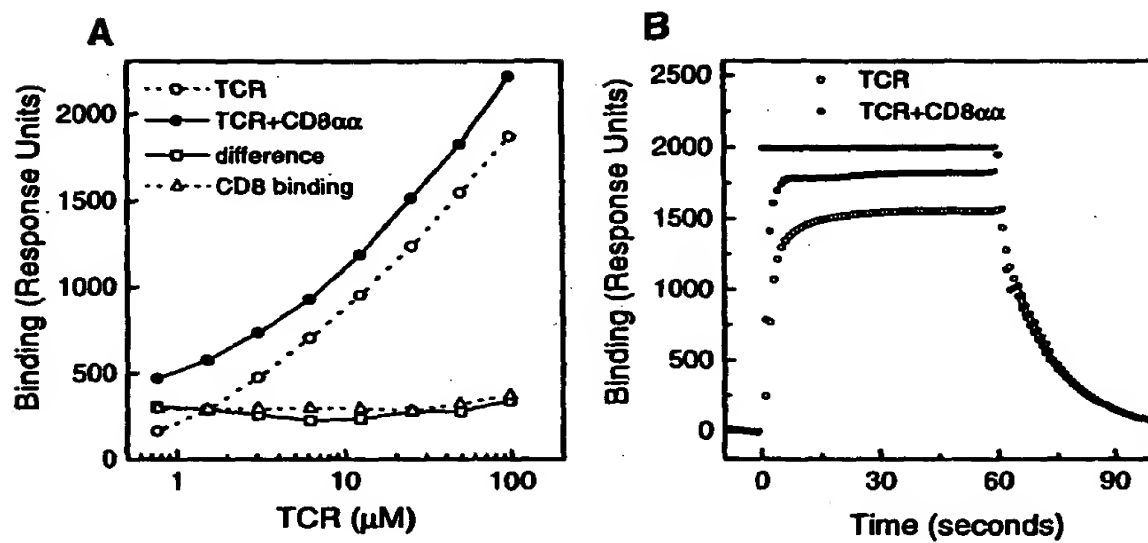


FIGURE 43

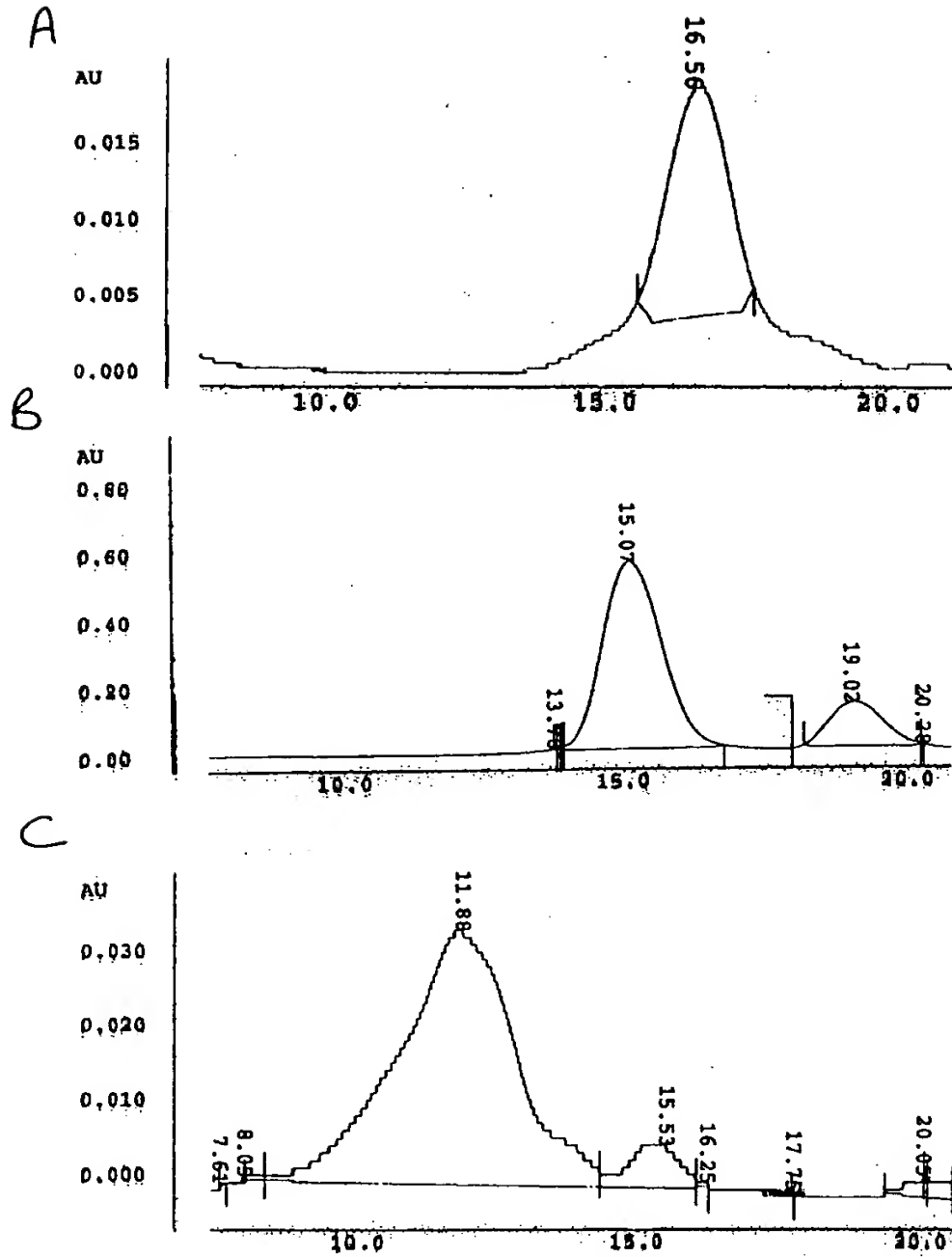
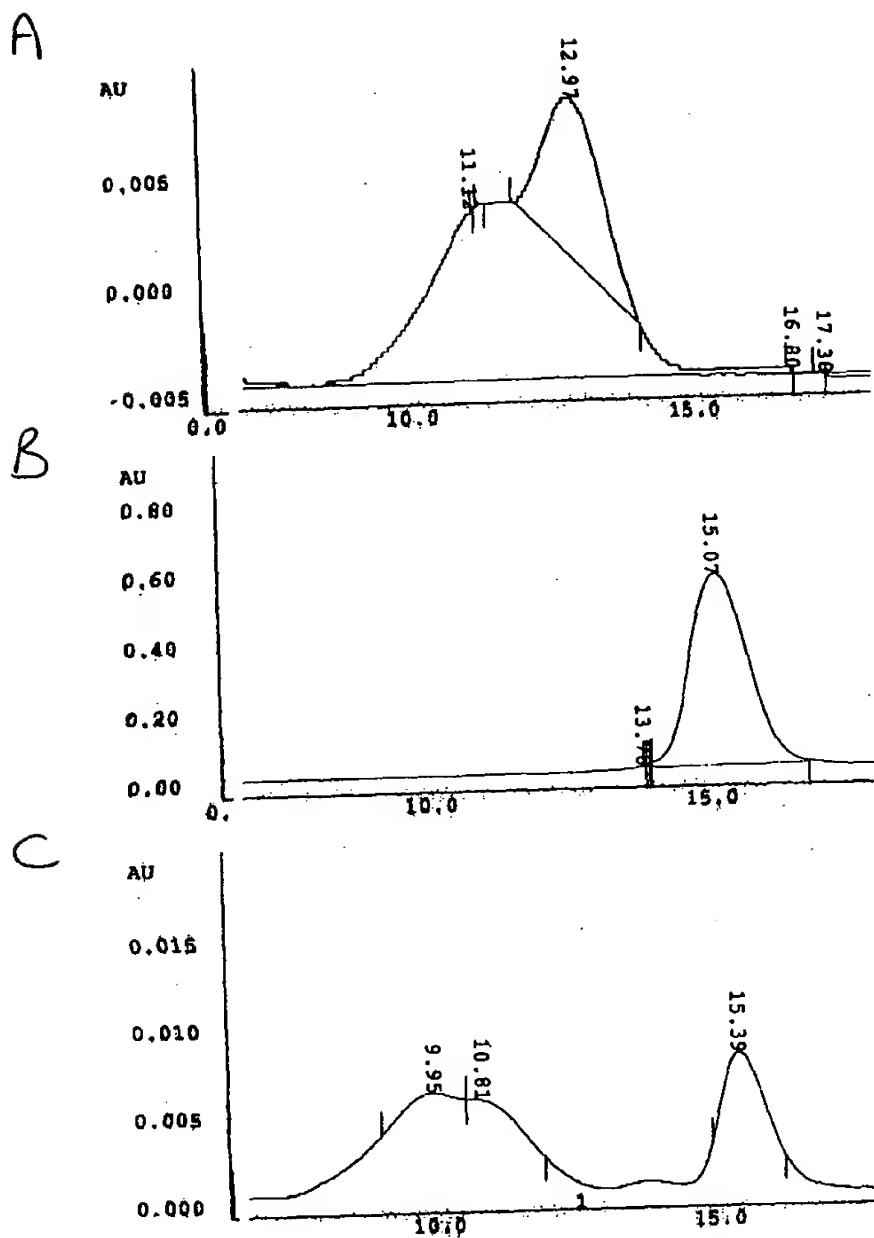
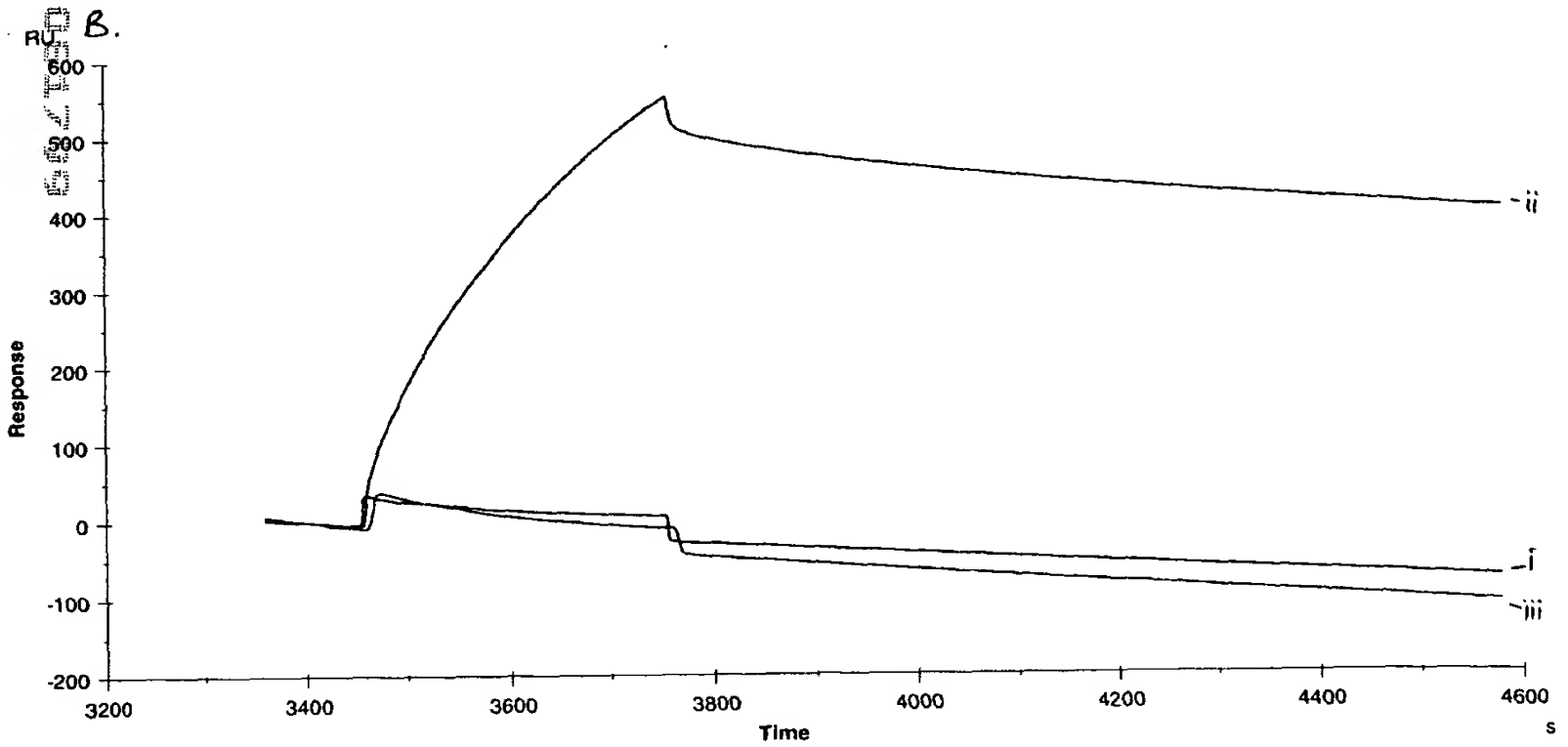
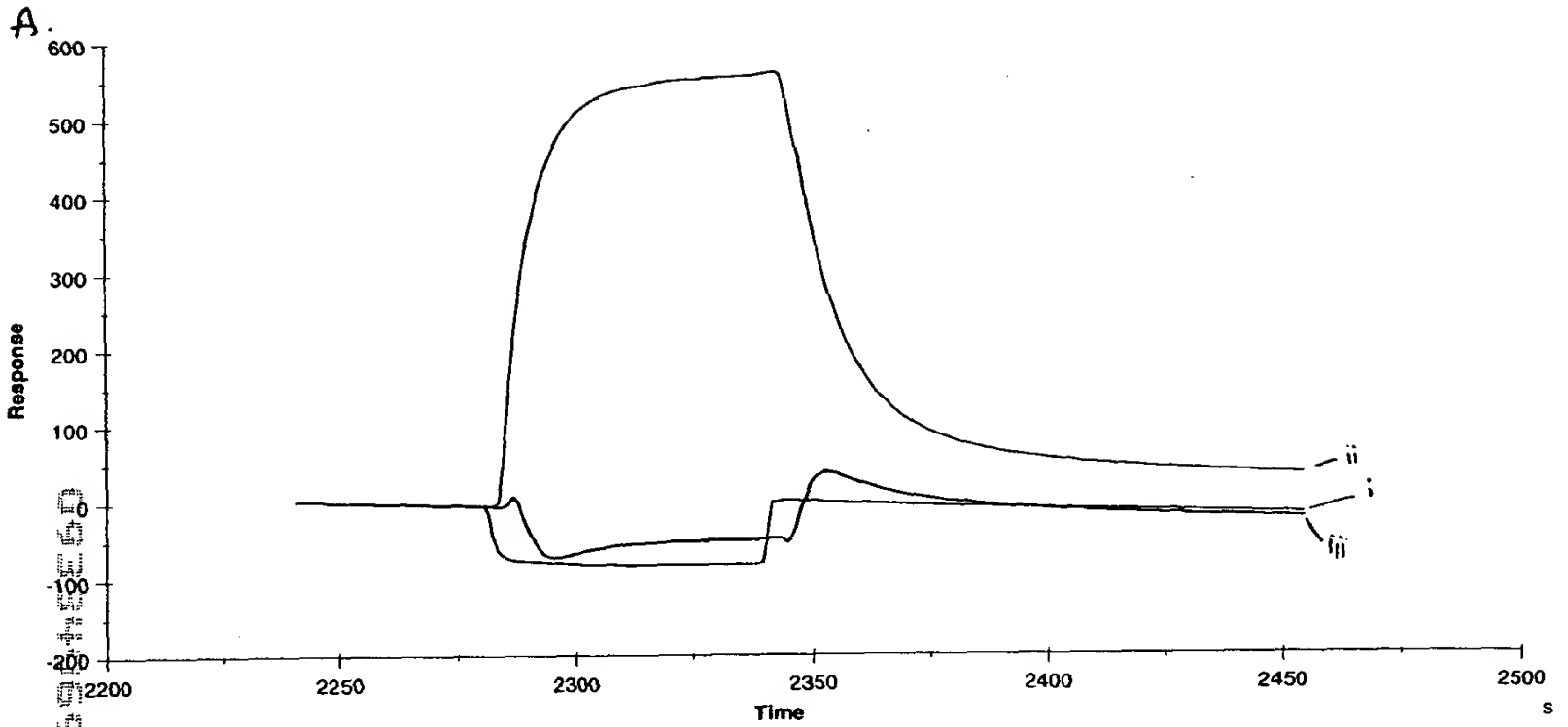


FIGURE 44



56/60

FIGURE 45





57/60

FIGURE 46

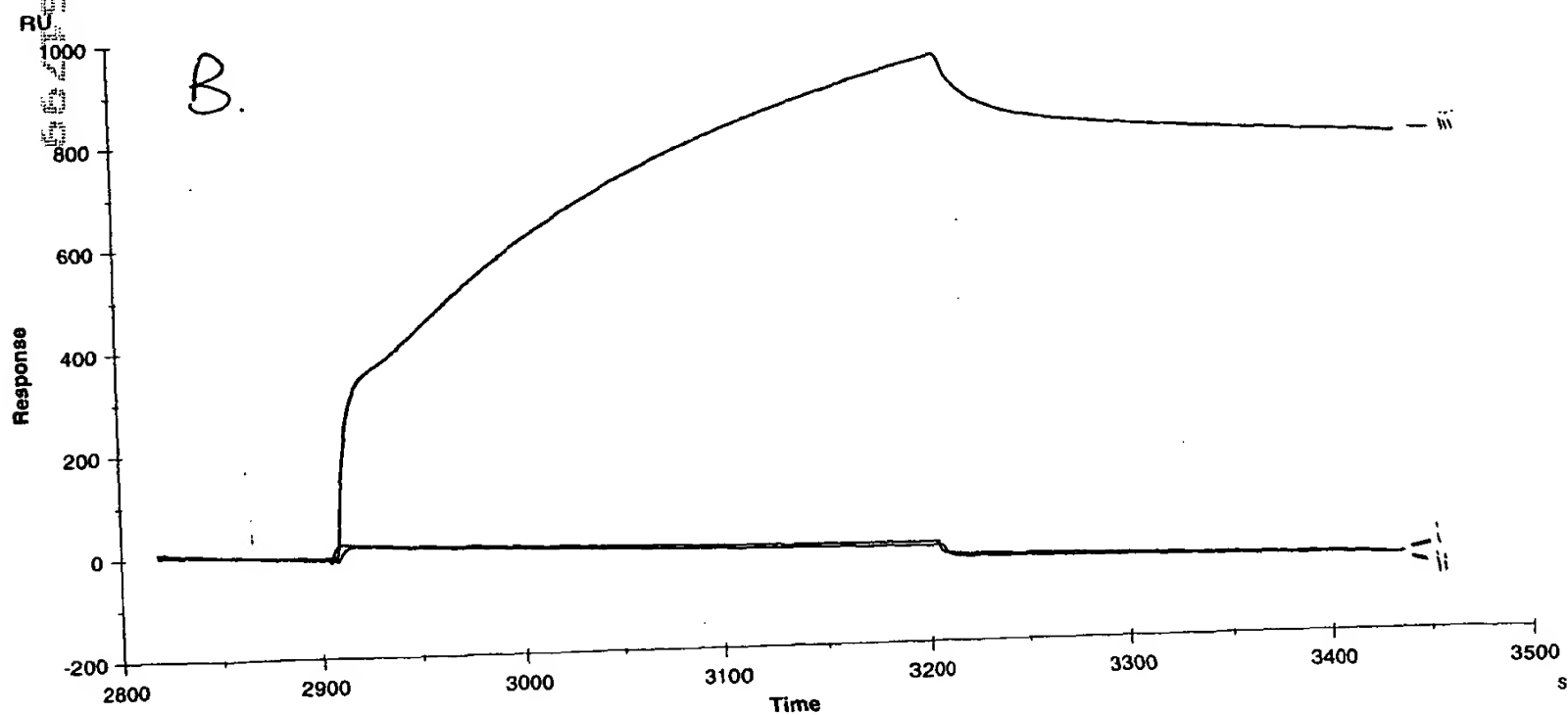
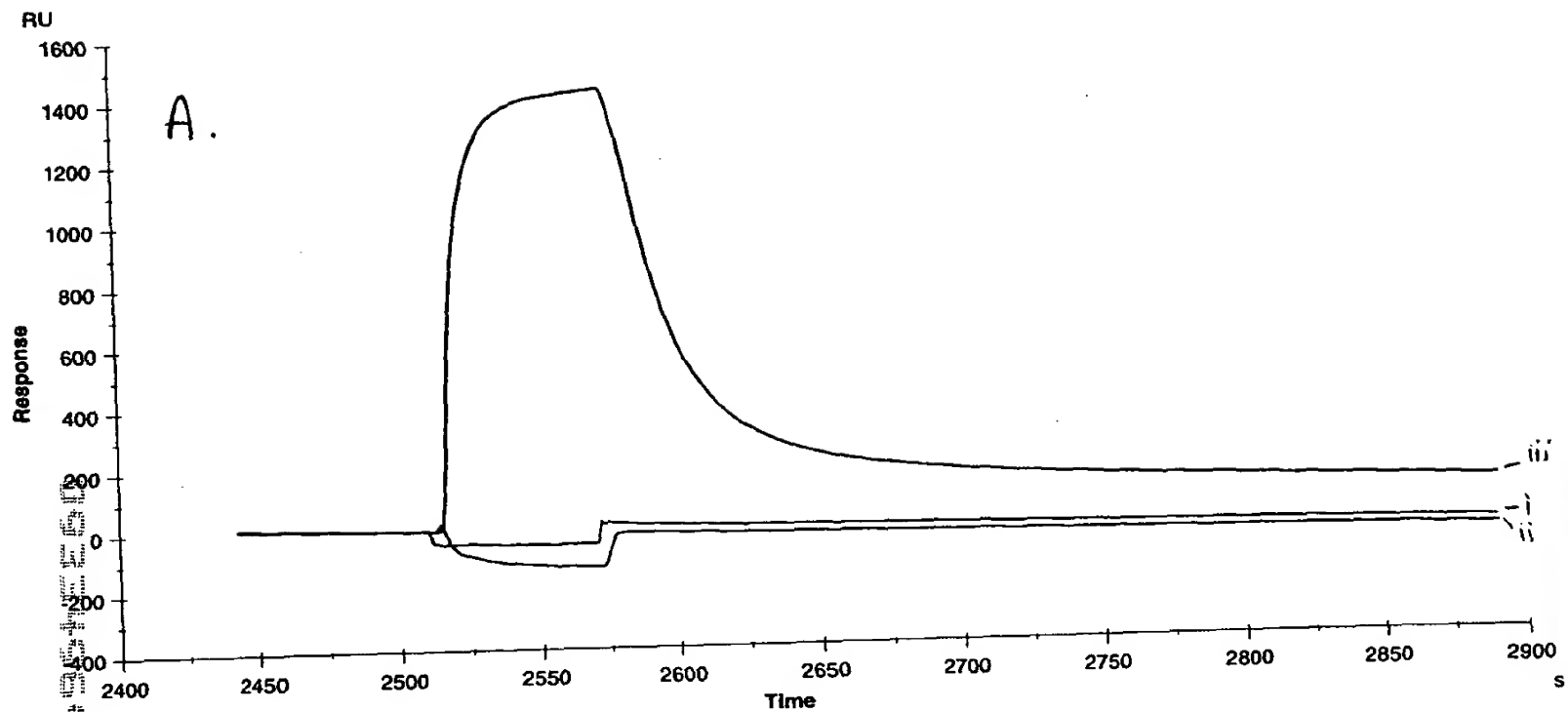
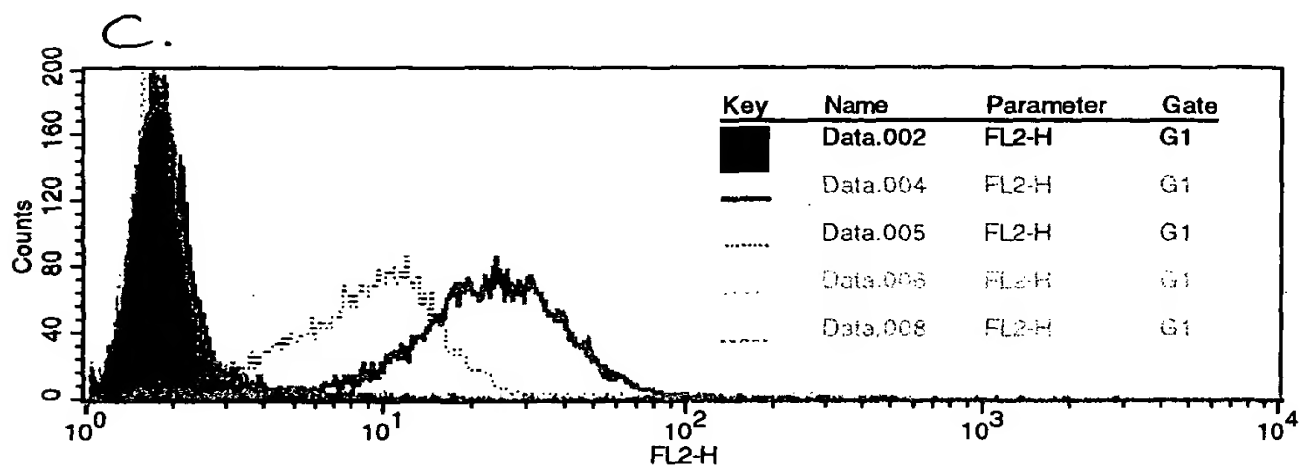
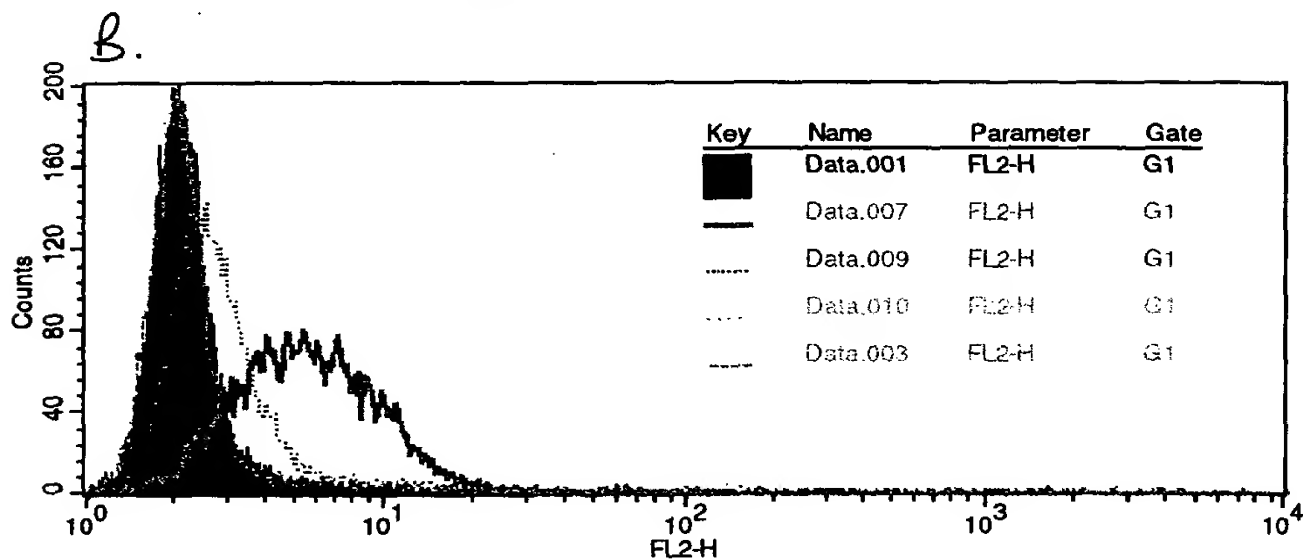
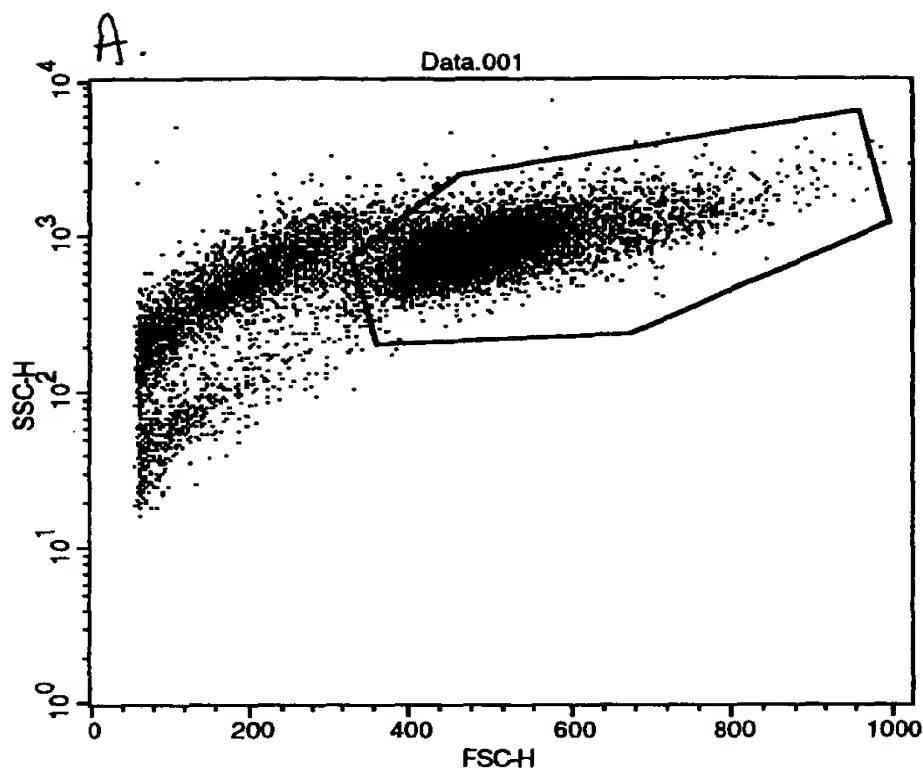


FIGURE 47



59/60

FIGURE 48

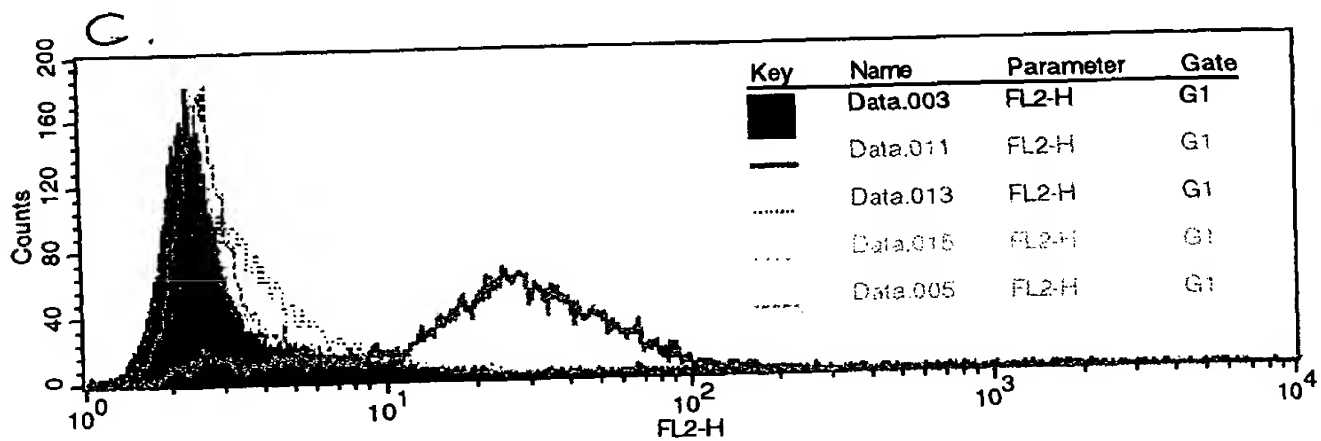
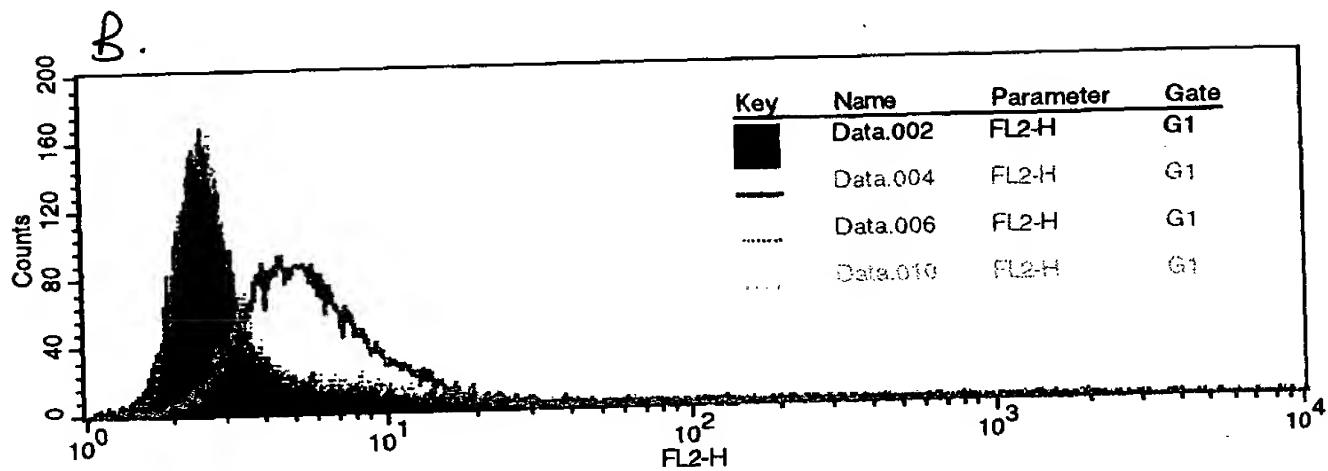
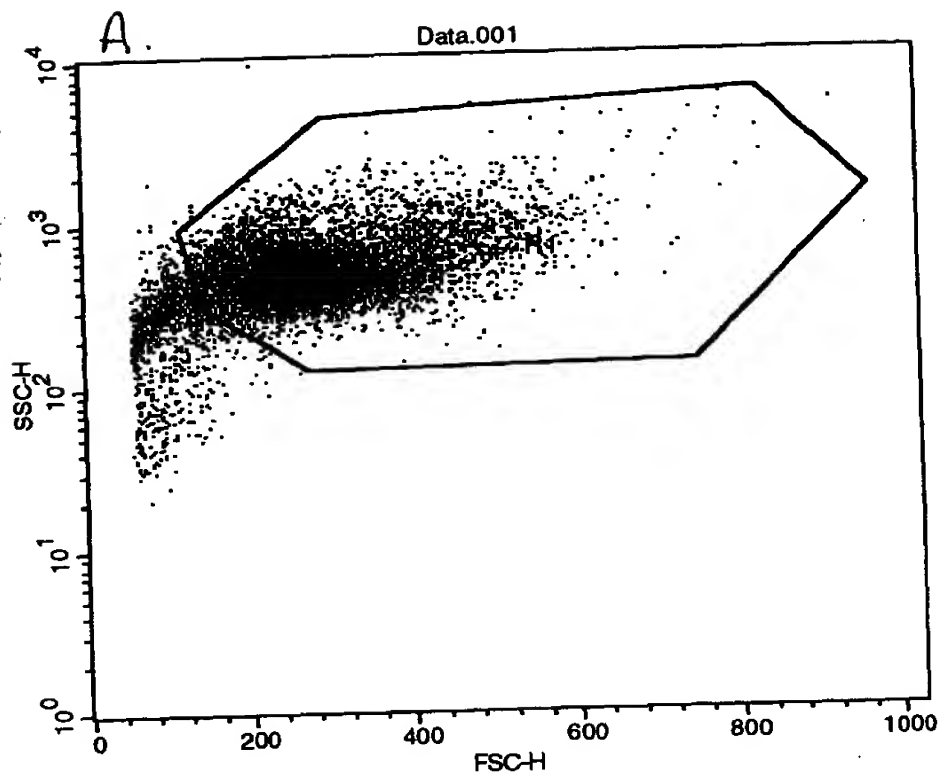


FIGURE 49

